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WILLIAM McDOUGALL
1871-1938

THE LIFE AND WORK OF WILLIAM McDOUGALL

CHARLES SPEARMAN
University of London

Preparatory Studies

In William McDougall a great man has passed from among us. The following lines are at once a tribute to his achievements and an attempt to derive further profit from them. This is especially the case in respect of the topic of the present journal. For in no field have his contributions been more fundamental than in that of character and personality.

But first of all, let us briefly relate the principal features in his general education and background.

Outstanding, to start with, have always been his manifestations of "general intelligence." To quote only a few instances, he was for several years the youngest boy in his school. He entered his first university, that of Manchester, at the abnormal age of fifteen. At his second university, Cambridge, he obtained a first class in Greek after only one term's study of that language.

And all this native ability was utilized to the utmost. By the time he had finished all his education, he must have been as nearly as humanly possible omniscient. His university subjects included languages, history, mathematics, biology, geology, poetry, metaphysics and ethics, followed up in London by a study for the medical degree which included not only all the regular courses but also all the special courses available.

Among his psychological studies, he seems to have derived especial benefit from Lotze, Stout, and James, together with, on the experimental side, G. E. Müller. Wundt's works he found "dusty." Nor does he seem to have got much nutriment from Külpe, Ziehen, Münsterberg, Hoffding, Bain, Hobhouse, Lloyd Morgan, or Ward. On the anthropological side, besides reading such classical writings as those of Tylor, Long, and Frazer, he enjoyed the personal teaching of Rivers.

Championship of "Purpose"

Turning from McDougall's preparatory studies to his ensuing achievements, we find that both the origin and the essence of his chief scientific message have reached their most definite expression in the following words:

> I had come to see more and more clearly that the main defect of the psychologies with which I had struggled in the opening years of the century was their acceptance, or their compromise with, the mechanistic biology, and their consequent neglect of the purposive or teleological aspect of all mental life. I seemed to see clearly that, whatever theory of the relation of mind to matter (of the psychophysical relation) one might hold, any psychology that ignored, or failed to bring out clearly, the fundamentally purposive nature of mental activity was doomed to sterility. . . . The most essential character of life-processes seemed to be their goal-seeking nature.[1]

Thus from the very start, his purposive doctrine was mainly elucidated by contrast with the mechanistic kind. This latter he defined as follows:

> explanation through events, however immaterial, that lie wholly in the past, explanation that makes no reference to the future.[2]

But with the mechanistic he conjoins the sensist tendency.

> I could not follow Lloyd Morgan and his many disciples in supposing that by adding sensations and images to mechanical reflexes we can generate intelligent mental activity. Sensations were to me unreal abstractions; and "ideas" and "concepts" were anathema, the fountain-head of most of the confusion in modern philosophy and psychology. The mind was in some sense a unity from the beginning and developed not by accretion of sensations, images, and ideas, but by a process of perpetual differentiation and specialization of its rudimentary powers of knowing, of feeling, of striving towards goals.[3]

Furthermore, he regards the ancient sensism as only culminating in the modern so-called "behaviorism."

> This is the line of thinking which, beginning with Hartley, has culminated in the mechanistic behaviorism of Dr. Watson and his followers. Those who accept it say that we do not need to trouble about Ideas; but only need concern ourselves with physical impressions and physical responses. For they imagine that they can adequately imagine all the brain-processes that intervene between sense-stimulus and motor response, without seeking any aid from introspection.[4]

[1] William McDougall, in *A history of psychology in autobiography*, I, ed. C. Murchison (Worcester, Mass., 1930), p. 215.
[2] *Ibid.*, p. 217. [3] *Ibid.*, p. 215.
[4] Men or robots?, in *Psychologies of 1925*, ed. C. Murchison (Worcester, Mass., 1926), p. 275.

Partial Success

Now, for this great campaign on behalf of purposiveness McDougall claims a partial success. He writes (in 1930) as follows:

> Fifteen years ago American psychologists displayed almost without exception a complete blindness to the most peculiar, characteristic, and important feature of human and animal activity, namely, its goal-seeking. . . .
>
> Now, happily, all this is changed; the animal psychologists have begun to realize that any description of animal behavior which ignores its goal-seeking nature is futile, any "explanation" which leaves it out of account, factitious, and any experimentation which ignores motivation, grossly misleading; they are busy with the study of "drives," "sets," and "incentives."[5]

But he protests that American psychologists have not even yet gone far enough:

> their recognition of goal-seeking is generally partial and grudging; they do not explicitly recognize that a "set" is a set toward an end, and that a "drive" is an active striving toward a goal, that an "incentive" is something that provokes such active striving. The terms "striving" and "conation" are still foreign to their vocabularies.
>
> Much the same state of affairs prevails in current American writings on human psychology.[6]

This standpoint comes to its keenest expression in a controversy between him and one of the most able and moderate of his opponents, namely Woodworth. The latter had written as follows:

> Some authors, as especially McDougall, appear to teach that any thoroughgoing causal interpretation of human behavior and experience implies shutting one's eyes to the facts of purpose and striving. There is certainly some confusion here. There can be no contradiction between the purposiveness of a sequence of actions and its being a causal sequence. A purpose is certainly a cause; if it had no effects, it would be without significance. Moreover, for anyone to harbor a purpose, he must believe in the causal nature of the stream of events in which he means to work. His purpose seeks to control the course of events, by adopting means that can be relied on to produce the desired outcome. Without some experience of dependable causes to be utilized as means, a purpose could scarcely take rise.[7]

But to this McDougall rejoins:

> When we discover finally his definition of "a purpose," it confirms our suspicion that, in spite of all his well-sounding camouflage, Woodworth is on the side of the mechanists: "Conscious purpose is an adjustment still in the making or just being tuned up." . . .

[5] The hormic psychology, in *Psychologies of 1930*, ed. C. Murchison (Worcester, Mass., 1930), p. 3.
[6] *Ibid.*, p. 3.
[7] Dynamic psychology, in *Psychologies of 1925*, ed. C. Murchison (Worcester, Mass., 1926), p. 118.

Again: "A purpose is a set for a certain activity with foresight of the result of that activity." But does foresight play any part, or is it merely an accompaniment? Woodworth refuses to commit himself.[8]

Characterology

The main positive fruit of McDougall's endeavor appeared in his most original and successful work, *Introduction to Social Psychology,* followed up by his two noble volumes, *An Outline of Psychology* and *An Outline of Abnormal Psychology.*

In these books he presents us with a picture of extraordinary vividness and truthfulness. He indicates that already in its lowest phases the behavior of animals, far from showing no signs of consciousness, manifests all the marks of being purposive. On evolution into insects, vertebrates, mammals, and finally man, their purposiveness becomes continually richer and more organized.

In particular, the primitive "instincts" develop into "sentiments." These in their most primitive form are described by McDougall as follows:

> A sentiment involves an individual tendency to experience certain emotions and desires in relation to some particular object. It is an enduring conative attitude toward an object set up by the experience of the individual. . . . Consider the case of a puppy-dog that is repeatedly teased and maltreated by a particular boy whom it meets on the streets. It quickly acquires the tendency to run away in fear, at the mere sight or sound of this boy in the distance. . . . In a similar way, a child may acquire a habit or a sentiment of fear for another person; as the small boy for the big bully. The main difference between the case of the dog and that of the boy will be that the boy, owing to his greater power of imagination, will be apt to be reminded of the bully, by conversation or otherwise, when the bully is not present . . . and the impulse of fear will determine him to work out in imagination plans for avoiding the bully. Such a most simple sentiment is formed through the repeated evocation of some one instinctive response by some one object.[9]

At a later stage the sentiments become more complex. McDougall writes:

> If the small boy is not utterly lacking in spirit, not entirely without pugnacity, his sentiment for the bully will inevitably grow more complex. Sometimes he will angrily resent the bully's interference with his actions, perhaps actually by angry blows and words, perhaps only when the bully is remote; on thinking of the bully, the small boy rages within himself, plotting vengeance. In this way, the affective-conative disposition of the combative instinct becomes directed or set toward the bully . . . we may

[8] The hormic psychology, in *Psychologies of 1930,* ed. C. Murchison (Worcester, Mass., 1930), p. 10 n.

[9] *Outline of psychology* (London, 1923), p. 419.

say that the "idea" of the bully has become associated with the affective-conative dispositions of two instincts, namely, those of escape and of combat.[10]

Far more elaborate still is McDougall's depiction of the sentiment of "love." Much to be regretted is that considerations of space forbid us to quote more than a few lines:

> One winter day, as you return to your lonely lodging, you notice, crouching against the wall, a miserable-looking dog, dirty, cold, and emaciated. . . . He looks up at you, shrinking timidly; and you are moved by the emotion we call pity. You speak gently, look more closely, and see he has a crushed foot. . . . You gently coax him to follow you home. There you make him a warm bed, give him meat and drink, and bind up his wounded foot. . . . You find a strange satisfaction in all your kindly actions. . . . When the neighbor's big dog attacks him, you rush furiously to his defense. When your neighbor complains of the noise he makes, you resent his aspersions and find extravagant excuses. . . . And, when he lies stiff and cold, a mere dead dog, you know the pangs of sorrow. . . . Half ashamed of your actions, you bury him tenderly in the garden and plant a bush upon his grave.[11]

After love and hatred, McDougall proceeds to notice two other great types of personal sentiment, namely, "contempt" and "respect." From all these he distinguishes the sentiment of "friendship," such as is typified in the relation between fellow-students. And when the friend belongs to the opposite sex, the sentiment is apt to become enriched in two ways: by protective tenderness and by sexual impulses.

However, "the most important of all the sentiments, by reason both of its strength and the frequency and far reaching nature of its operations" is held by McDougall to be that of "self-regard." A person, he says:

> becomes extremely sensitive to the expressions of other persons toward himself; both because these expressions are significant of satisfactions and of pains to come, and because they bring immediate satisfactions and pains; the elation of praise and admiration, augmenting all his satisfactions of success; the pain of thwarted self-assertion and self-display, increasing the pains of failure. . . . In these ways the word "I" or "me" grows richer in meaning, as he builds up a system of beliefs about his own nature, a system of beliefs which is rooted in, because in the main sprung from, the two great conative dispositions of self-assertion and submission. . . . In the normal man, the two main tendencies of the sentiment, the impulses of self-assertion and submission, are duly balanced, and the sentiment is properly called "self-respect." When the self-assertive tendency is unduly preponderant and takes the relatively passive form of finding satisfaction in

[10] *Ibid.*, pp. 419 ff. [11] *Ibid.*, p. 421.

merely contemplating the superiorities of the self, of enjoying the elation brought by the deference and homage of others (whether actual or fancied only), we call the sentiment "pride"; and when the superiorities (fancied or real) in which satisfaction is chiefly found are trivial or of the body merely, we call it "vanity." When this impulse assumes a more active role and seeks progressively and insatiably to compel the admiration, deference, homage, and submission of an ever larger number of men, we call the sentiment "ambition" or the "will-to-power," or, in extreme cases, "megalomania."[12]

As for the "moral sentiments," such as love of justice or of truth, hatred of cruelty or dishonesty, dislike of untidiness, these a person is held to derive from "sympathetic contagion and by suggestion from admired personalities":

in the end, the moral sentiments of the group in which his life is mainly passed tend to mould his into conformity with themselves; for his group enforces its traditional code with rewards or punishments, praise or blame, admiration or scorn and ridicule, according as he conforms in word and deed, or rebels and stands apart.[13]

And in these sentiments, McDougall arrives at what here chiefly interests us, namely, character. For the sentiments, he says, are just the units of which the character is constituted:

Character is the system of directed conative tendencies. It may be relatively simple or complex; it may be harmoniously organized or lacking in harmony; it may be firmly or loosely knit; it may be directed in the main toward lower or toward higher goals. Character of the finest type is that which is complex, strongly and harmoniously organized, and directed toward the realization of higher goals or ideals.[14]

Summing up, McDougall finds that the evolution of purposive striving and therefore of character passes through seven stages:

(1) The vague, almost undifferentiated striving of the animalcule in pursuit of his prey. (2) The strivings of animals in which the instincts are sharply differentiated and directed toward specific goals that are vaguely anticipated by the creature. (3) The instinctive strivings of primitive man toward goals more fully imagined and anticipated; the strivings of instinctive desire. (4) The strivings of men prompted by desire for instinctive goals, but directed also to goals which are conceived and desired only as means to the instinctive goal. (5) Conduct of the lower level; that is, instinctive desire regulated and controlled, in the choice of means, by anticipation of rewards and punishments. (6) Conduct of the middle level; that is, the same instinctive impulses regulated in the choice of goals and of means of anticipation of social approval and disapproval. (7) Conduct of the higher level; that is, striving regulated in the choice of goals and means

[12] *Ibid.*, pp. 427 ff.
[13] *Ibid.*, p. 436.
[14] *Ibid.*, p. 417.

by the desire to realize an ideal of character and conduct, a desire which itself springs from an instinctive disposition whose impulse is turned to higher uses by the subtle influences of organized society embodying a moral tradition.[15]

Other Chief Fields

Passing from McDougall's general doctrine of the mind as being dynamic and purposive, we may turn to many other fields into which this doctrine, so to speak, overflows.

First and foremost comes the sphere of abnormal psychology. Here again he vigorously attacks, not only the extreme mechanists and behaviorists, but also those whose mechanistic tendency is "modified by some partial and inconsistent recognition of true mental activity." For him:

functional disorders are commonly the expression of sub-conscious purposes, or of the failure and disharmony of conflicting purposes which may be wholly or in part sub-conscious.[16]

Thus on this fundamental point, but by no means throughout, he approaches the teaching of Freud.

A still more controversial field into which his dynamism leads him is that of heredity. Rebelling against the "then all-dominant neo-Darwinism or Weissmanism" doctrine, he not only turns back in the direction of Lamarckism, but does so for the rest of his life with ever increasing enthusiasm.

Ever more arduous and abstruse is his pursuit of his principle into the consideration of the general relation between mind and body. He maintains that the psychical qualities are engendered by the complex conjunction of brain processes. He calls this view "animism" and is inclined to identify it with what has been named "emergence."

Last may be mentioned how his principle even brought him to the support of "Psychical Research."

Here, it seems to me, was a body of ancient beliefs all of which Science seemed utterly to deny. Yet the ground of such denial was plainly inadequate. It was in the main an inference from the assumption that the universe is a strictly mechanical system.[17]

The remainder of McDougall's teaching must here be omitted for lack of space. Much of it belongs rather to sociology and even

[15] *Ibid.*, pp. 448 ff.
[16] *Outline of abnormal psychology* (London, 1926), p. 38.
[17] William McDougall, in *A history of psychology in autobiography*, Vol. I, ed. C. Murchison (Worcester, Mass., 1930), p. 219.

politics. Though always eloquent and suggestive, it can scarcely claim such thoroughness as the work mentioned above.

Reception

Let us conclude this outline of his great work by a few words about the way in which it has been received. And here our account must end pathetically. His autobiography is in the main an admission of failure. He had very numerous readers but few converts. He dwells on "the hostility of the American press" to his work. He complains that "hardly any serious criticism had been made upon it, though a multitude of superior persons had jeered at it."

He says that the publication of two of his chief books:

> was like dropping a stone into a bottomless pit. I waited to catch some reverberation; but in vain. Each book received, I think, one favorable mention in the press; and that was all. I could never discover that anyone in Oxford had read either of them.[18]

How shall this strange apathy, or even hostility, be explained? Of course it would be easy, but not profitable, to talk about pearls and swine. More light, perhaps, is thrown on the matter by McDougall's own repeated admission of his tendency to "rebellion." He writes:

> Whenever I have found a theory widely accepted in the scientific world, and especially when it has acquired something of the nature of a popular dogma among scientists, I have found myself repelled into skepticism.[19]

But even this rebelliousness would appear to be only a symptom of the situation, not its cause. In truth, McDougall and his antagonists belong to opposing types. He for his part inclines to the subjective, perseverative, or introvert. He revels in "large systems of ideas, which is each in itself closely connected, highly developed, and deeply rooted." And this involves some danger of "unpracticalness" and a "tendency to exaggerate feeling-toned ideas."[20] Whereas his critics, especially in America, are more objective, nonperseverative, or extrovert. They have "a prompt apprehension and instant utilization of outer impressions," but a "defective power to build up large systems of ideas," and "inability to be profound." So much for the two warring parties. We venture to suggest that there is room in the world for psychologists of both sorts. To the man with large systems of ideas, a little objective criticism may sometimes be, if not pleasant, at least salutary. Inversely, if at

[18] *Ibid.*, p. 209. [19] *Ibid.*, p. 204.
[20] See Charles Spearman, *Abilities of man* (2d ed., London, 1932).

an earlier period of history, psychological literature did indeed suffer from excessive cult of the profound, at the present day the pendulum seems to have swung in the opposite direction of excessive shallowness. Accordingly, McDougall's "large systems of ideas" may well be just what are needed to extricate current psychology out of a situation far more precarious than is usually suspected.

Let it be added finally that not the least profit to be gleaned from his writings is the acquaintance with the writer. For whatever acknowledgment may or may not be vouchsafed to his teachings, no one ever seems to have failed to recognize in him an intellectual giant among men. And those of us who have been privileged to know him more intimately, have found him no less lovable than admirable.

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DOES THE LURIA TECHNIQUE MEASURE EMOTION OR MERELY BODILY TENSION?

A Re-evaluation of the Method

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After much experimental work, Luria has proposed a new method for the study of "emotion": the disintegration of motor habits caused by the spread of dynamic influence of emotion aroused by mental conflict. His theory and procedure have been described in detail several times (1, 5, 7, 10, 11, 13), and need not be repeated here. Essentially, the method is this: the subject places the fingers of both hands on sensitive tambours. He responds to a stimulus word both orally and by striking the tambour with his right (preferred) hand. The left, or unpreferred hand, is not voluntarily moved. Disturbances in the smooth performance of this motor task, and variations in the left-hand record, are considered diagnostic of "emotional" disorganization.

Huston, Shakow, and Erickson (5) repeated the most essential of Luria's experiments, and found confirmation of the method as an aid in the detection of "emotion." Barnacle, Ebaugh, and Lemere (1) also employed the method in a word-association study, and found significant disturbances in the motor performance of both hands. Olson and Jones (11) found the technique valuable in the study of "emotionally" toned attitudes.

Runkel (12), using a laboratory situation to establish an "emotional" content for certain words, found the technique valuable in the detection of deception by indicating the presence of a disorganizing "emotion." Although he felt that his results in general tended to confirm Luria's thesis, he found that in no case did the record of

the left hand show an appreciable deviation. He suggests that his material was not sufficiently stimulating.

Burtt (3), in discussing an experiment definitely planned to employ mild stimulation, confines himself to the right-hand responses, presumably indicating a lack of unusual left-hand responses.

Gardner (4), also using the technique in conjunction with the word-association method, found left-hand disturbances which were more intense for the critical than for the noncritical words, though these disturbances were less significant than those of the right hand.

Speer (13), using quite different stimuli, found the left hand more significant than the right, the most important indicator being the fact of a response, rather than the degree of response, when all measures were quantitatively stated.

These previous studies have assumed an affect to be already attached to the critical words or other stimuli employed, or situations developed. The method has then been to attempt to detect what is already known or assumed to exist.

The present experiment is intended to investigate the nature of the responses made to stimuli to which no affect has been previously attached. If then any of the reactions which have been apparent in all other experiments with the Luria technique occur, they should be due to factors developing during the experimental situation.

With the idea in mind that an "emotion" is aroused when an individual is thwarted in his desire to accomplish a set goal, a situation was devised whereby the individual would be presented with a task which could easily be done, and then led through several stages to a task which he could not accomplish, at the same time recording any motor phenomena, according to the Luria method, which might develop.

Materials

The recording apparatus consisted of a tambour system in connection with two pens which recorded any change in pressure of either hand; an electric chronometer in circuit with a third pen for recording constant time; and an electric circuit and fourth pen for recording the moment of the stimulus and the response. A more detailed description of this apparatus has been published by Speer (13), as well as similar reports on apparatus by several others (1, 6, 5, 10, 12). The stimulus material consisted of thirty problems (each consisting of three numbers to which the S was to respond with the next logical number) arranged in order from very simple

to very difficult. The order of these problems had first been determined in advance on a large group of children matched for age, sex, and intelligence to the experimental group.

For the purpose of analysis, nine problems separated by approximately equal distances of difficulty were selected. These problems are:

I	1	2	3	VI	16	18	21
II	5	4	3	VII	2	4	8
III	9	7	5	VIII	8	4	2
IV	27	9	3	IX	3	7	9
V	1	1	2				

Subjects

The subjects in the main experiment were sixty-five children living in Mooseheart. Thirty-five of these were boys, and thirty were girls. The boys ranged in age from 15.2 to 18.7; the girls from 14.8 to 18.4. The range in Terman-Binet intelligence quotient was from 88 to 121 for the boys, and from 85 to 116 for the girls. All of the children were in the tenth, eleventh, and twelfth grades.

Method

The subject was ushered into the experimental room and asked to be seated. He was unable at any time to see any of the apparatus except the two metal cups for his hands and the tambours, and the wooden screen. Following a few minutes conversation intended to put the subject at ease, he was given the following instructions:

This is just a simple little test to see how well you can think. I'm going to read a few problems to you, and you tell me the answers. The other boys (girls) have all done them very easily, and I'm sure you can too.[1] The problems are like this: I will say three numbers, and you tell me the number that should come next. You figure out from the three numbers I say how the numbers should go, and what number should come next. Like this. . . .

Here three or four very simple problems of the level of I and II (p. 3) were read, so that S understood what was to be done. Then:

Now that you understand how to do the problems, I want to show you what else you are to do. Put your hands in these cups, and then put them on the rubber so that the round flat part of the cup is touching the rubber.

[1] The instructions were calculated to make the S feel perfectly confident of his ability at first, so that when he reached the level at which he could not succeed, he would be more disturbed than he would be if he had originally felt that the test would be hard. The apparently casual remark to the effect that his friends had done them easily had the same purpose in view: a means of allaying any fears at the first, and an additional source of discomfort when the problems became difficult.

The subject was helped to put his hands in the proper place, and the cups were adjusted so that they were comfortable. The additional instructions were then given:

Now, every time that you say the answer to the problem, press down with the right hand[2] . . . like this. Leave the left hand where it is, touching the rubber. Do you understand? Every time you say the answer, you push down with the right hand, but you leave the left where it is.

As Luria's theory assumes the linkage of a motor act with the verbal, practice is required when the S is to perform a new task. Therefore from fifteen to twenty additional problems, still on the level of I and II, were given, thus associating the motor response with the verbal. After this series was completed, and the S evidently trained in the correct procedure, a final set of instructions was read:

Now you know what to do. Remember that the problems are simple, and you should be able to do them easily, quickly, and correctly, just as the others have done.

The experimenter then seated himself behind the screen, where he could observe the S, but not be seen by him. The problems were read slowly, distinctly, and loud enough for the S to hear them easily. The circuit was completed at the instant the third number was read, and was broken at the moment the S made a verbal response.

Treatment of Data

Nine indices were obtained from each kymographic record. These are:

R-Ht..... height of right-hand response
No-R..... number of right-hand responses
T-V..... time of vocal reaction
T-Lu..... manual reaction time
L-Ht..... height of left-hand response
No-L..... number of changes of pressure in the left-hand response
Len..... length of the left-hand disturbance
R-D..... percentage of subjects who had disturbances of the right-hand response, for each problem
L-D..... percentage of subjects who had disturbances of the left-hand response, for each problem.

For convenience in discussing this material later, and for ease in handling the data in tables, these measures have been assigned the

[2] The subject was asked which was the preferred hand, and if he were left-handed the tambours were reversed, so that the records would appear similar, at the same time allowing the subject to use the preferred hand which is referred to throughout the study as the right hand.

arbitrary symbols, given above, by which they will be referred to throughout the paper.

Results

The means for each of the seven indices, and the percentage of responses for the two indices, for the nine stages of difficulty, are presented in Table 1. It should be remembered that R-D and L-D represent percentages, whereas the other figures are measurements of length in sixteenths of an inch.

Table 1
Average Individual Indices for Each of Nine Stages of Difficulty

Index	I	II	III	IV	V	VI	VII	VIII	IX
R-Ht	11.0	10.4	10.4	10.3	10.0	9.5	9.4	9.2	9.1
L-Ht	1.0	1.3	1.4	1.5	1.7	2.2	2.2	2.3	2.6
No-R	1.8	1.9	1.8	1.9	2.0	2.2	2.5	2.6	3.5
No-L	2.1	2.8	2.6	3.5	3.9	4.3	4.4	5.6	6.7
T-V	9.1	14.1	18.5	26.4	29.2	30.0	35.0	35.7	36.0
T-Lu	6.3	7.5	14.0	20.4	23.8	25.4	31.5	34.3	37.5
Len.	14.2	14.1	23.4	24.2	25.0	31.4	34.4	36.7	34.9
R-D	45.2	48.8	50.0	50.0	54.4	60.7	64.2	66.0	78.4
L-D	37.2	40.9	51.7	53.7	56.6	57.1	67.8	69.2	84.6

From Table 1 it will be seen that:

1. As the complexity and difficulty of the mental work increased, the amount of tension in the right or preferred hand decreased (R-Ht).

2. As the complexity and difficulty of the mental work increased, the amount of tension in the left or unpreferred hand increased (L-Ht).

3. The increase in tension in the left hand is proportionately greater than the decrease in tension of the right.

4. The proportion of subjects who exhibit motor disturbances in the response, for both hands, increases as the work increased in complexity and difficulty (R-D and L-D).

5. The number of changes in direction of the tension records for both right and left hands increases with the complexity of the mental work. The increase is proportionately greater in the left hand than in the right (No-R and No-L).

6. Contrary to the findings of other investigators, the manual response preceded the vocal response for all but the most difficult stage in the work (T-Lu and T-V). This has been assumed to be one of the most diagnostic symptoms of "emotion."

7. The pattern of the responses was consistent for all of our subjects, although the actual degree of tension varied from one individual to another.

8. Young (14) felt that the effect of "emotion" was indicated more by the amplitude of the tremor than by the rate. Burtt (3) says that the "only quantitative aspects which seem worth further study are the actual amplitude of the push and the height of the rebound." In this experiment it was felt that the actual amplitude of the push (R-Ht) was the least significant of the items measured. Speer (13) found similar results.

9. Luria stressed the diagnostic significance of the multiple response. Burtt (3) found this in only four of his subjects. We found this sort of response occurring in nearly half of our subjects when responding to very simple material of neutral or supposedly non-emotional tone; and in more than three-fourths of our subjects when responding to very difficult material.

10. The left-hand responses presented much greater disturbances than those of the right hand.

In order to make the comparison of the responses for the several stages of difficulty more apparent, the figures have been converted to index numbers, and are presented in Table 2. The mean response on Problem I for each of the various indices has been accepted as the norm, and subsequent figures are compared to it. For our purposes this method is felt to be much more useful than the critical ratio. The latter method involves an amount of labor, when used in connection with such data as ours, which is not justified by the information it yields.

From Table 2 it is apparent that the manual reaction time is the most affected by the increase in difficulty, and inability to do the

TABLE 2
AVERAGE INDIVIDUAL LURIA INDICES CONVERTED TO INDEX NUMBERS

Index	I	II	III	IV	V	VI	VII	VIII	IX
R-Ht.....	100.0	94.5	94.5	93.6	90.9	86.3	85.4	83.6	82.7
No-R.....	100.0	105.5	100.0	105.5	111.1	122.2	138.8	144.4	194.4
T-V.....	100.0	154.8	203.2	290.1	320.8	329.6	384.6	392.3	395.6
T-Lu.....	100.0	119.0	222.2	323.8	377.7	403.1	500.0	542.8	595.2
L-Ht.....	100.0	127.7	131.6	144.5	169.3	217.8	218.8	227.7	260.3
No-L.....	100.0	133.1	123.7	165.8	187.2	206.6	209.4	265.8	317.0
Len.....	100.0	99.2	164.7	170.4	176.0	221.1	242.2	258.5	309.1
R-D.....	100.0	107.9	110.6	110.6	120.3	132.0	142.0	146.0	173.4
L-D.....	100.0	109.9	138.9	144.3	152.1	153.4	182.2	186.0	227.4

work. Verbal reaction time is the second most affected. The next four items are all left-hand responses: No-L, Len, L-Ht, and L-D. Then come the right-hand responses: No-R, R-D, and R-Ht.

Discussion

It is Luria's thesis that a disorganization of an established motor habit is the result of an "emotion." The normal subject, reacting to "non-emotional" stimuli, should have a regular and smooth performance. Within small limits, his performance should show no variation.

Disturbances in the motor performance occurred for our subjects even on the simplest material, to which no affect could have been previously attached, and which was not sufficiently complicated to arouse any fear of failure. It is of course quite possible that this stimulus did arouse an "emotion" in 37 per cent of our subjects whose left-hand performance was disturbed. These subjects may have been more sensitive to the instructions given, may have been more conscious of the coming comparison of their records with those of their fellows, or this may be a normal and customary tremor.

Luria (10) indicates that the first symptom of disorganization is to be found in the motor disturbance of the right hand. As the "emotion" increases in intensity, the disorganization spreads to the left-hand performance. On these early problems, the right hand was more susceptible to disturbance, a larger percentage of our subjects showing an unevenness in the right-hand performance than in the left. This condition was soon reversed, however, and after the first two levels of difficulty the left hand is much more disturbed than the right. It would seem that the voluntary motor performance of the right hand allows the discharge of tension which is created, or tends to conceal the discharge of the tension. The left hand, however, has no motor act which is to be voluntarily performed, and any disturbance in this hand is immediately reflected in the record.

The amount of tension revealed by the right-hand push (R-Ht) decreased as the "emotion" increased, and the left-hand push increased. The left-hand pressure record increases proportionately faster than the right, but the absolute increase is much less than the right-hand decrease, so that if the two figures are added together to obtain a "total tension" index, there would be indicated a gradually declining amount of tension.

However, the frequency of other motor disturbances as No-L and Len, are, in our opinion, also indicative of tension, and should be considered together with the actual height of the left-hand push. It seems logical to us to consider that the total amount of tension for the left hand should be the product of L-Ht and Len, rather than a simple statement of L-Ht. A pressure of 1 mm. for 10 seconds is a greater tension than a pressure of 1 mm. for 1 second. Considered in this way, the total amount of tension exhibited in the left hand increases much more rapidly than the tension in the right hand decreases. This appears as another indication that the disorganization of the involuntary performance is more rapid, and more complete, than the disorganization in the voluntary. However, the voluntary motor habit has more than one way to dissipate its energy, and these are not measured by this apparatus. The intensity of the vocal response, for instance, may be one means of reducing the tension in the voluntary system, and is not measured here.

One other possible explanation occurs. The reduction of tension in the right hand may be the result of a conscious desire to withdraw and give up. On account of the nature of the instructions and from knowledge of other experimental situations in which they had taken part, the subjects were made to feel in competition with their fellows. Thus, a part of the unmeasured factors in this study which might have a direct bearing on the results is the antagonism between the feeling of rivalry and competition which was aroused, and a not unnatural curiosity as to what the whole thing was all about and why should any effort be made in something that did not matter.

Conclusions

1. Disturbances in the smooth performance of a muscle act, assumed to be indicative of an "emotion," were found to be present in response to very simple material which would not ordinarily arouse an emotion. In brief, it may be stated that for such an emotionless mental task we obtained about exactly the same progressive results in tension in involuntary muscular tension as did Luria with his supposedly progressively more and more emotionally weighted situations.

2. The disturbances of the involuntary responses seem much more diagnostic than the disturbances of the voluntary responses.

3. Whether the response obtained with this technique should be

termed "emotional" or simply should be denoted as "tension" is debatable. In other words, a logical solution of this dilemma seems to be that any disturbance in the total organism might register itself in terms of muscular tension. Thus, in the light of the type of technique used and the nature of the stimuli employed, we might well be dealing with the type of problem considered by Bills (2) on the influence of muscular tension on mental work.

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* Since this article went to press, this reference of interest to our problem has appeared.

RITUAL AND EMOTION

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I

The bulk of our convictions is taken over lock, stock, and barrel from our predecessors. We have no time to overhaul any but a very small proportion: the rest is taken for granted. It is, however, necessary to keep re-examining a few, so far as our short lives allow, in order that our culture may be kept fluid and adaptable.

The conviction I have selected for revision is the very general one that ritual is essentially emotional, is in fact the child of emotion. This opinion has seldom, if ever, been challenged during the last hundred years or so. The only difference of opinion has turned on the particular emotion that has given birth to ritual, whether fear, or sex, or conflict, or whatever the fashion of the times might suggest.

Undeterred by this unanimity, let us go straight to the facts. They are not difficult to find, especially on Sundays.

It is at once obvious that the series of actions which we call ritual is accompanied by emotion. But so is everything we do. Scientific work is the very type of intellectual activity; yet it is accompanied and sustained by emotion. It cannot flourish without enthusiasm. One of the greatest scientists of the last century, Pasteur, was continually talking of the sacred flame, and thus giving away the source of his energy. The fact is that no one could face the intellectual drudgery of science without the support of emotion. Emotion furnishes the driving power for science, but it is not science. So ritual may be tinged with emotion; but it is not on that account made of emotion.

If ritual proceeded from emotion, then we should expect that the greater the ritual the greater the emotion. That is not the case. The most complete and elaborate rituals in this island of ours are the Anglican and the Roman. They are also the earliest, as we

know from documents. Now the striking fact about these rituals is that they have a consistent and detailed structure which results from working out logically a central idea. They are worked out with such consistency and such attention to detail that emotion can never really let itself go. That is precisely the reproach which the anti-ritualists make against ritual, that it is cold and freezes the emotions. They want freedom and spontaneity, so that emotion can flow where it will. That is their great argument in favor of extemporized prayer. They, accordingly, break up the ritual pattern in order to free the emotions.

If we compare the degree of emotion in the various cults of our own country we find that, contrary to received opinion, the greater the emotion the less the ritual. The emotionalists, those who want worship to be an emotional exercise, not a creative act, are invariably anti-ritualists. The final break-up of the ritual is reached in those revivalist movements where emotion works itself up to hysteria. They retain nothing but fragments of the pattern—namely, the hymns, the prayers, and the sermon. They retain them as stimulants of the emotions, not as parts of a well-ordered sequence of episodes developing one out of another. If we know that they once formed part of such a sequence it is only that we have documents to prove it.

Even these fragments may disappear, and the ritual may cease to be a ritual at all. Such are the meetings of the Society of Friends. They may be a model of placidity now, but it must be remembered that originally inspiration took such a violent form that the Friends were nicknamed Quakers.

Our rituals have set hard; they are no longer in the plastic state of a new cult. We can, therefore, observe only the spirit in which they are performed, not that in which they are built up. There are parts, however, in which the spirit of the designers pierces through very clearly. Some of them, notably the creeds, sound more like legal documents than like emotional outbursts. If we had no history of the councils we could still guess that they were the work of committees met to explore every avenue of reconciliation, to find a formula which would unite a majority in damning the exotics.

II

We can still, to some extent, watch how a ritual is built up if we turn to the old brahmanical books. The ideas at the back of the sacrifice were then still just alive enough to work out points

of detail. These are worked out in a manner more akin to Euclid than to the mystics. The teacher had as definite an end in view as a modern agricultural expert: he wanted to insure prosperity, largely in the shape of cattle, crops, or sons; and he reasoned out the means from first principles mainly by a series of equations.

This period was the culmination of ritual complexity. Intellectualism is generally followed by an emotional reaction. It happened in this instance. Emotionalism began to corrode the ritual in the Upanishads; and in the shape of Buddhism to destroy it. This religion addressed itself to those who suffered from world-weariness, and from what Dr. H. G. Baynes calls desirousness, a condition of chronic desire, which cannot be allayed by attaining its ostensible object, because that object is not the cause, but the excuse. Buddhism sets out to treat these emotional disturbances, and so discards a ritual which has been worked out for external purposes.

The usual thing happened. Ritual cast out at the door came in again in disguise. It clothed itself in the healing phraseology of Buddhism. The final result is far from being emotional. There is as logical a structure as in our mass. The central idea is different: there it was the king suffering, here it is the king triumphant. We are present at the daily repetition of his consecration. He is bathed, robed, invested, and finally presented with a collation. The procedure is rigidly fixed, and nothing can be more uninspired than the stanzas that accompany it, because the author was not so much venting his emotions, as bringing the act into harmony with the doctrine. On the other hand, there is a dignity about it that belongs to all well-ordered, well-thought-out ceremonies, in which the emotions are kept in their places.

In this respect the official Buddhist ritual contrasts with the popular cults of the gods. These gods have only saved themselves by becoming good Buddhists. At Gammadupitiya, for instance, the center of the holy ground is occupied by a tree dedicated to the Buddha; the four gods face him at the four quarters. The cult begins in an orderly manner with texts borrowed from Buddhism; then, having affirmed its orthodoxy, it breaks out into a wild orgy of possession, into a go-as-you-please in which there is little structure to be seen.

The same contrast is to be observed in Fiji. The main ritual there, as elsewhere, is the king's ritual, only not a departed spiritual king as in Ceylon, but a present one. From beginning to end it

forms an ordered sequence in which all emotional display would be considered bad form. Of course, there is emotion, but it does not break through as it does in the spiritualistic cult of "The Children of Water." This cult has copied its opening forms from the royal kava, and so it begins with the same chain of actions slightly altered; but this is merely a formal introduction to a formless proceeding. When the kava has been drunk the initiates become possessed, and from that moment order is abandoned for a competition in quakings and ejaculations. The weaker spirits are bullied into being possessed, just as in our own revivals.

This exhibitionism and this bullying are characteristic of emotional cults. They appear again in the very careful observations Professor E. E. Evans-Pritchard has given us of the Azande witch ceremonies.[1] The witch proceeds to work himself up to a frenzy, the details of which depend on the individual temperament. "I have seen men," Evans-Pritchard says, "in a wild state of excitement, drunk with the intoxicating music of drums and gong, bells and rattles, throw back their heads and gash their chests with knives till the blood poured out in streams down their bodies." We look in vain for an orderly progress from preparation to climax and close, or for an expression of the underlying ideas. Since there is little thinking there is little speech: "It is not the magic words, or ritual sequences which are stressed." If the witch has to speak it is only to render oracles. His replies "are not concise and straightforward, but long-winded, rambling, broken discourses," full of repetition after the manner of such performances. They lack structure. The witches often adopt a bullying tone. Since the object of all this class of rituals is emotion, all present have to share in it, and the laggards are bullied into the proper excitement.

Nowhere has emotion simplified ritual more than in Egypt. There, as everywhere, there exist beneath the official cult popular varieties which appeal to the mass because they let loose the emotions. For that very reason they are condemned by the intellectuals as being against the doctrine, for the intellectuals dislike all violent emotional display. Nevertheless, these cults shelter under that doctrine.

There is, for instance, in Cairo a saint's tomb where assemblies are held every Friday afternoon. The audience is so keyed up that ecstatic swayings break out sporadically even before wor-

[1] E. E. Evans-Pritchard, *Witchcraft, oracles, and magic among the Azande* (Oxford, 1937), pp. 155 ff.

ship has begun. At first loyalty to the doctrine is expressed by repeating the creed; but this is done with rhythmic swayings. Short as is the creed, it seems too long for the growing excitement, and the assembly soon plunges into the indefinite repetition of the two syllables that form the name of God.

The *zikr,* that is often to be seen at the festivals of saints, carries simplification even further. The ritual has there been boiled down to violent rhythmic swaying to the right and left, sometimes punctuated with humphs that represent the name of God. Intense emotion becomes inarticulate, as we can often observe on the golf course. Therefore emotional cults always tend to become stagnant repetition; this dwindles into ejaculations, which in extreme cases becomes mere grunts.

III

To return to our own country, we have been able to observe with our own eyes the gradual emotional reduction of another class of ritual, the funeral ceremonies. Note that it is the most sensitive that are most inclined to cut down all the traditional observances, the flowers, the elaborate processions, the collations, and the other funeral episodes that are so well preserved as parts of a definite structure in countries where people take death more as a matter of course. The intensity of grief cannot endure this cold elaboration; it is continually revolting against public opinion which demands the traditional observances. Just now it has been so successful that even signs of mourning have almost disappeared. If any vestige is retained it is not as an expression of grief, but as a warning to others to avoid stirring up that grief.

We must note that here we have to do with a different type of emotionalism. The emotion may be keen, but it is all driven inwards, whereas in the hysterical cults it finds boisterous expression. We are not, however, concerned here with the different types; if I draw attention to them, it is to point out that they make no difference to the rule that, whether emotion breaks out, or whether it withdraws into its shell, the moment it becomes the chief consideration the structure which logic has built up shrivels away.

If emotion dissolves the ritual structure, absence of emotion complicates it. There are dry minds for whom ritual is nothing but an arena for intellectual gymnastics. They produce not ritual, but ritualism. The purpose is lost sight of, and deduction is pursued for deduction's sake. The old ritual books of India are in-

terminable in their refinements, because common sense is not there to keep the teachers within the bounds of the essential; for there is no emotion there, and common sense is nothing but healthy emotion keeping thought along the lines that are worth while.

IV

Ritual is a social activity, and so requires an organization, and organization means hierarchy. Emotion breaks up the organization as it breaks up the performance. Emotional cults are at once individualistic and gregarious, individualistic in so far as each man follows his whim, gregarious in so far as all the actors do it together, and their whims are monotonously alike. They need company in order to work themselves up, but they work themselves up each for himself. There is little teamwork. Emotional rituals are democratic, and so therefore are emotional sects.

It is not an accident that our most elaborate rituals are in the keeping of the most elaborate and hierarchical sects, while the most emotional sects are the most amorphous, kept together, not by a cadre of officers, but by sharing a common emotional display.

In India, too, an elaborate ritual goes hand in hand with a complex social structure in which each one has his place appointed by descent.[2]

Fijian society is as much a church as a state, since the whole organization is worked out in the king's service, and the king is a present god. It has a symmetry which might be described as crystalline, though simpler than the caste system of India, even as the ritual is simpler.

At the other extreme lies the Egyptian mass which might be compared to a colloid, a crowd with little structure. One single fact will perhaps serve to illustrate this characteristic: no one is appointed to serve a saint; his priest is anyone who "has succeeded in imposing himself by busying himself with the tomb actively and assiduously."[3] That might be said, with the necessary adaptations, of many emotional sects in our country, but more especially in America; it cannot be said of the Church of England, or the Indian caste system, or the Fijian king's court. And yet Egypt did once possess an elaborate hierarchy which also had the king or the god as its center, and the people as its periphery. If we are to judge the spirit of Ancient Egypt by its art, then we must conclude that

[2] A. M. Hocart, *Les castes* (Paris: Musée Guimet, in press).

[3] Mohammed Jalal, *Essai d'observations sur les rites funéraires en Égypte, Études Islamiques* (1937), p. 216.

at the times when that organization was most settled, the spirit of the times was most serene.

Evidently we are here in the presence of an interesting social phenomenon, the dissolution of a structure, leaving in the end an amorphous, but none the less cohesive community.[4] I can do no more here than draw attention to the phenomenon, and pass on to the Azande.

We are told that their witches' seances are popular, and repugnant to the aristocracy; for an aristocracy needs dignity, and dignity involves control over the emotions. "Consequently," says Dr. Evans-Pritchard, "the political pattern of Zande social life has left no imprint upon the institution of their witch-doctors, for had princes entered into the corporation they must necessarily have done so as leaders."[5] The Azande witch-doctor, like the Fijian leader of the Children of Water, is not appointed, but simply practices in virtue of his knowledge of plants. His staff of drummers is often the result of a scramble to get possession of the drums. He is backed by a fortuitous crowd of small boys.

V

Ritual is not the only intellectual construction that is liable to be broken up by emotion. Science can be disintegrated in the same manner. A man like Pasteur may be encouraged in his work by hopes of great benefits to be conferred upon mankind by his discoveries; but that is secondary: his real interest is in hypothesis and proof, and so he never lets his heart run away with his head, but pursues his experiments with implacable logic. There are others, however, with no more heart but considerably less head, for whom the vision of mankind delivered of all suffering is primary. Intellectual constructions, so far from pleasing them, cause resentment, because they shackle the emotions which are straining after quick results. Quick results are not to be achieved by wishing; but it is possible to imagine results, in order to keep up the ecstasy. From applied science, as from emotional ritual, it is a fatally easy step to self-deception and quackery.[6]

Whatever is human lies closer to the emotions than carbon or hydrogen; so it is in the science of man that emotion most readily attacks the structure of thought. A distinguished professor of one of the branches of this science once complained to me that all his

[4] A. M. Hocart, Contribution to Modern Egypt, in *The legacy of ancient Egypt* (Oxford, in the press). [5] Evans-Pritchard, *op. cit.*
[6] Cf. C. A. Flexner, *Universities* (Oxford, 1930).

pupils who came into his subject directly were suffering from an emotional upset, and it took him two years to teach them how to think. My experience confirms his. Logical constructions give way to emotional appeals. Emotion is assisted by the repetition of words that have acquired a strong emotional coloring, and this coloring again is intensified by repetition. The word *man* does not so much describe a featherless biped as suggest universal love. In a world of ruthless individualism the word *social* expresses unsatisfied yearnings, and the idea of the *family* becomes an emotional substitute for a fading reality. The phrase "culture contact" has become limited entirely to contact of dominant and dominated; it comes thus to evoke sympathy for the underdog, and is turning into a thin disguise for welfare work *in partibus.*

It is power which the soul seeks in ecstasy, power to fly, to prophesy, to heal body or soul, or to cure social ills. The word *power* belongs to everyday speech; *dynamis,* being Greek, is more imposing, and the termination *ism* has become associated with powers, capitalism, communism, militarism, and the rest, which push mankind this way and that like the gods of old. *Dynamism* is not an explanation, but a confession of faith; faith is the attainment of power. Where there is love of power bullying readily appears, and this is not unknown among professors of the sciences that deal with man.

VII

If science is considered the type of intellectual activity, art is generally considered to be essentially a vehicle of emotion; yet it has its logic too. "Logic, the science of reasoning," an architect has recently told us, "is the basis of all artistic processes, and in architecture is the basis of the art itself." And he proceeds to show the logic being broken up by the emotional pursuit of the useful; functionalism, I believe it is called in architecture: "In the kind of slang architecture," he says, "aptly described as modernistic, you will find that logic has been put on afterwards, just as style used to be. The architect has felt like a balcony in one place, and a patch of glass bricks in another, and only at the last moment has contrived for them some apparent reasons for existence." These disconnected features correspond to the ejaculations of emotional rituals and the slogans of emotional science. There is something aggressive about them, something bullying.

This slang architecture is an emotional revolt against what a friend of mine calls the copybook style. This is the architectural

equivalent of ritualism. It is the combining of traditional motives, not in subordination to an end, but for the sake of virtuosity. For the copybook architect, "a gable," as our critic puts it, "is a gable and not the natural end of a necessary roof, and a buttress is a convenient means of distracting attention from a soil pipe."

We do not condemn all architecture because there are architects who lose sight of the purpose in the elaboration of details. There is an unfortunate tendency to spurn all ritual, because there are ritualists who weave wearisome subtleties. Even if it were a disease of religion, as some would have us believe, it would require to be studied: disease is a suitable object of study, and our great medical schools were built up on the study of disease.

VIII

As a matter of fact, ritual is not a disease, though it may become diseased just like science or art. The trouble is that we talk of ritual very much as if it were a thing in itself, an unchanging entity which can be defined like mass or elements. In reality, the word merely describes chains of action which can vary infinitely. They are in a perpetual state of flux, so that, as we have seen, ritual may become the negation of ritual.

We cannot define what is always changing, because we can never find a formula that will express all the varieties, and include even opposites. It takes some analysis to discover something in common between the brahmanical ritual and our mass; it takes a great deal to find anything in common between a Fijian consecration and the mass; no amount of analysis will find a common denominator between a Quaker meeting and a Fijian medical charm.

Then by what right do we classify them together under the heading ritual? It is not by reason of their emotional coloring. What emotion is shared by a medical charm and vespers? by an Egyptian *zār* and a Unitarian service? Some rituals are joyful, others sad; some are all dignity, others sheer buffoonery. It cannot be by reason of function, for the function of a *zār* is to cure disease, of a coronation to install the head of the state.

Then what right have we, I ask again, to place all these incommensurables under one common heading, ritual? The same as we have for classifying elephants and herrings as vertebrates. They have little enough in common, and if there were no other animals in the world anyone who classified them together would very properly be laughed at. There are, however, many other animals which

can be arranged in a more or less complete series, and then we look round for fossils to fill up the gaps, and we find them. In the same way it may seem ridiculous at first sight to talk of our coronation ceremony and a Fijian medical charm in the same breath, but we can link up the Fijian charm with the consecration of a Fijian chief, and this with consecrations further west. Working from the other end, we can join up with India, and so gradually weave two chains that meet in the middle into one single one that cannot be broken at any point. If there are gaps, our fossils from Ancient Egypt or Mesopotamia may fill them. The extreme members may appear totally unrelated, but each one is obviously related to its neighbor, and this to the next one, and so on.

Let us then cease to define ritual and make generalizations about an abstract concept, such as that it is colored by fear, or sex, or conflict; let us rather concentrate on the task of describing its forms minutely so that we can put them in their proper relations. Then we can see the transformations they undergo. The next step is to discover the causes of those transformations.

I have tried to indicate one cause, the paralyzing effect of strong emotion upon thought.

Every scientific problem solved merely leads to another. Science has no end. The solution I have offered merely raises the further question, why should the degree of emotion which attaches to all rituals, as to all intellectual activities, vary at all? And especially why should it vary in different strata of a society, or at different periods of its history? We have seen that it is chiefly in the lower classes that emotion lets itself go, and breaks up the structure. We have also had reason to believe that these popular movements can spread through a society and simplify the whole religion.

We here find ourselves in presence of a very big problem, how are cultures built up and dissolved? It is a problem we are constantly coming up against, and which we shall have to tackle soon if we are not to come to a stale end. The problem is too big for a short paper; I shall be content if I have succeeded in drawing attention to its fundamental importance.

FEELING AND THE HORMIC THEORY

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The Hormic Theory and Its Difficulties

The threefold classification of mental processes into the categories of cognition, affection, and conation has firmly established itself in modern psychological literature and has shown its usefulness in a multitude of discussions, introspections, and experiments. It is pretty generally admitted that this classification (like most others) to some extent distorts the facts, inasmuch as in real life processes of all three kinds are continuously occurring in intimate combination, and that we are guilty of abstraction when we single out processes of one kind or the other for separate treatment. Nevertheless, some such classification is probably necessary, if we are to attain any kind of ordered understanding of the rich facts of mental experience, and it may safely be said that no alternative classification can boast of anything approaching the same degree of success in actual practice. It is true that the distinction between affection and conation has proved in many cases more difficult than that between either of these and cognition; hence the increasing use in recent years, at least among British psychologists, of the term "orexis," to cover both affection and conation as distinguished from cognition. Nevertheless, in many important matters it appears desirable and necessary to distinguish between feeling and striving as separable aspects of orectic experience and to determine the relations between them. One problem concerning these relations seems to be of supreme theoretical importance: that which deals with their respective roles in the initiation and development of behaviour generally. Put briefly and crudely, the problem is: Do we strive (and therefore act) because we feel? Or do we feel because we strive? The only plausible form of the first view is the doctrine now generally known as psychological hedonism, according to which all our actions are determined on one simple principle—we seek to procure pleasure and avoid pain.

This doctrine, immensely attractive because of its apparent simplicity, has been held by many thinkers of all ages, perhaps attaining its greatest vogue among British philosophers and psychologists of the nineteenth century. At first sight it has a distinctly common-sense appearance; we all recognise in ourselves what seems to be a willingness to make an effort in order to attain something which promises pleasure or to avoid something which threatens pain. But a closer study of the facts reveals certain difficulties which can be surmounted only by arguments which are far from convincing and which at once deprive the theory of all its delightful obviousness and straightforwardness. Some of the most distinguished upholders of psychological hedonism have lived lives of a rigid and austere pattern which accords ill with our customary notions of pleasure-seeking. Although we ourselves sometimes gluttonize and seek escape from our worries in the befuddlement induced by alcohol, there is yet among nearly all of us a widespread distrust of pleasure, which manifests itself in a great variety of asceticisms, individual and social. Thus we hesitate to discard our garments even in the hottest weather; we raise "moral" objections to birth control, which from the hedonistic point of view would seem to have removed the chief obstacle that foresight had previously placed upon the indulgence of the most thrilling and inspiring of our natural appetites; in their time our fathers raised similar objections to the use of anaesthetics, perhaps that one among the inventions of mankind which should have been least open to suspicion from the hedonistic standpoint. We are willing today to sacrifice many of the amenities which our increased power over Nature's could have given us, in favour of manufacturing vast armaments wherewith to kill each other and destroy those amenities we actually possess. Confronted with such facts as these, we can only save the theory of psychological hedonism by admitting that we are either enormously stupid or else enslaved to fear, guilt, and aggression of a kind that seems most perversely opposed to the claims of simple, healthy pleasure-seeking.

This immense influence of certain tendencies apparently opposed to pleasure, though it can and often has been "explained" in a very roundabout and laboured way on the theory of psychological hedonism, strongly suggests that this theory is not in itself a sufficient explanation of human behaviour, but that we must take account of certain impulses which impel us to act in their own right, largely or wholly irrespective of whether such action brings pleasure or the

reverse. This is precisely the position adopted by those, who, while still maintaining that behaviour is purposive and cannot be adequately described in terms of mechanical stimulus-response patterns, yet refuse to believe that all conduct can be accounted for as a seeking of pleasure or avoidance of pain. Following McDougall, its most determined and consistent upholder, this opposing view is now called the "hormic theory," the term "hormic" in its modern usage having been adopted from Sir Percy Nunn. According to this view we possess certain drives, impulses, propensities, or instincts (including, in their later developments, ideals and powers of moral control), which impel us to attain certain ends, and these drives, etc., are the fundamental motive forces of our minds. They are activated by certain cognitions (sensory, perceptual, imaginal, or ideational in nature) so that conation may be said to be directly attuned to cognition, and not dependent on affection.

Where then does feeling come in? The hormic theory maintains that affection, far from being the cause of conation, is itself dependent on conation—and dependent in a way that has been recognised from the earliest times. Pleasant feeling, it is said, is an accompaniment of successful conation, conation that is in process of attaining its end or has just attained its end, whereas unpleasant feeling accompanies frustrated conation (whether the frustration be due to external obstacles or to internal inhibitions). This view finds clear expression in Plato and in subsequent writers far too numerous to mention, including, in recent years, G. F. Stout, J. Dewey, S. Alexander, T. P. Nunn, P. Bousfield, Burlton Allen and, above all, W. McDougall. The treatment given to the subject by these various authors naturally varies as to detail, emphasis being sometimes laid, for instance, upon the relation of pleasure to the pre-existing tension which is responsible for the conation, at other times upon the intensity, duration, or complexity of the conation, but fundamentally there seems to be little or nothing that is mutually incompatible in the accounts that have been given of this hormic theory, all the above writers are agreed that pleasure is conditioned by success, unpleasure by failure.

Ample experimental confirmation of this view was meanwhile provided by Ach's celebrated researches on the will,[1] as also by subsequent investigators working along similar lines. Allied researches upon the nature of choice, such as those of Boyd Barrett,[2] Michotte

[1] N. Ach, *Über den Willensakt und das Temperament* (Leipzig, 1910).
[2] *Motive force and motivation tracks* (London, 1911).

and Prüm[3] and H. M. Wells, at the same time appeared to bring a direct refutation of the theory of psychological hedonism, at any rate in that form which McDougall has described as "teleological hedonism,"[4] the theory that we act for the sake of obtaining pleasure or avoiding pain. In these researches the subjects were, as a rule, asked to choose between alternative stimuli or tasks for some good reason. Nothing was done to exclude hedonic motives; nevertheless, the less pleasant stimulus or task was sometimes chosen, and even in cases where the choice followed hedonic lines it is not clear that affection generally determined conation in the way that the hedonistic theory demands. Wells, indeed, even tells us, as regards her own results, that "we have in no instance any definite report that affective states exert a controlling influence on the development of conative activity."[5]

Nevertheless, in spite of all this powerful support for the hormic theory, a great many writers have sensed a difficulty in applying the hormic explanation consistently and ruthlessly to all kinds of feeling. Some, indeed, including in recent times authorities of such eminence as James Ward and Sigmund Freud, have been quite frankly (though perhaps not quite deliberately) eclectic, inclining sometimes to the hormic, sometimes to the hedonist view; and generally it seems to have been felt that, while the hormic theory accounted very well for those pleasures and unpleasures that obviously implied a pre-existing conation or activity, there were other feelings which were apparently independent of such a pre-existing conation, and could therefore not easily be explained along hormic lines.

This distinction between the two classes of feeling is of great antiquity, having been clearly stated by Plato, who in the *Philebus* points out that some (the impure or "mixed") pleasures are dependent on a preceding disturbance or need, and are indeed in the nature of a relief from pain (such as the enjoyment of a drink by a thirsty man), while other pleasures are "pure," in the sense that they do not imply antecedent pain; for instance, merely not to possess geometrical knowledge may not be painful, though the study of geometry may be delightful. In general, these latter "pure" pleasures, as considered by Plato and subsequent authors, would seem to fall into three classes: the aesthetic, the intellectual, and the sen-

[3] *Étude experimentale sur le choix volontaire* (Louvain, 1910).
[4] In *Psychologies of 1930*, ed. C. Murchison (Worcester, Mass., 1930), p. 12.
[5] The phenomenology of acts of choice, *Brit. J. Psychol., Mon. Suppl.*, 1927, II, 118.

sory. Thus in a very recent work, C. E. M. Joad, upholding Plato's distinction, says: "Nor can it, I think, be denied that the very real pleasures of listening to good music, of looking at good pictures, of solving a difficult problem, of carrying on an abstract discussion, of pursuing a difficult but valuable line of research, are in no sense dependent upon a preceding state of need, or a preceding experience of pain. We are not made miserable because we are *not* listening to music, although we may enjoy ourselves very much when we are." He also mentions the more simple sensory and perceptual pleasures as falling in the same class—the smell of violets, the taste of chocolate, "one's pleasure in a bright frosty morning in winter or in the colours of the leaves on an October afternoon."[6] We have only to add corresponding experiences on the negative side, listening to a banal tune, looking at an ill-drawn picture, contemplating an ugly or depressing landscape, hearing a raucous noise, seeing a washy colour, experiencing some nauseating smell or taste or some racking pain—and the problem is set. The problem is: How far, if at all, can the pleasure or unpleasure in such situations be accounted for in terms of successful or unsuccessful conation?

In the light of recent discussion and experiment there seems little doubt that many of such experiences *can* be satisfactorily explained in accordance with the hormic theory. Indeed, such an explanation has actually been given in another place by Plato himself—and interestingly enough, in terms of the unconscious or subliminal; for in the *Timaeus*[7] he suggests that the mixed and the pure pleasures can both be brought under the same formula. In the mixed pleasures the need or "depletion" has been consciously experienced, so that we become aware both of the pain of "depletion" and of the pleasure of "repletion"; whereas the "pure" pleasures are occasioned by a sudden and appreciable "repletion" of a "depletion" that has been too gentle and gradual to reach the seat of consciousness, so that we are aware of the pleasure without being aware of the preceding need which makes it possible.

Intellectual Feelings

Considering now the modern approach, let us deal separately with the intellectual, aesthetic, and sensory experiences referred to above. As regards the intellectual pleasures, the present-day hormic psychologist has little difficulty in showing that the pleasure of solv-

[6] C. E. M. Joad, *Guide to the philosophy of morals and politics* (London, 1938), p. 408.

[7] Secs. 64, 65.

ing a problem or of carrying on a discussion is dependent on our *interest* in the problem or matter discussed; the arousal of interest being in turn dependent on the tapping of some source of instinctual energy. In the absence of interest we are merely bored, and unpleasure arises from the frustration of our desire to stop thinking or discussing; so the hormic theory is satisfied. If our interest *is* aroused, then we get pleasure in so far as we are advancing in our knowledge or understanding of the problem, unpleasure in so far as we are baffled. Here again the hormic view is justified, though we may note in passing that some degree of previous bafflement is inevitable if we are to experience the pleasures of "solving a difficult problem," so that in reality the intellectual pleasures are very far from being unmixed.

We may however profitably make some distinction along the lines that Plato and Joad suggest. In some cases Joad's statement that the pleasure in solving a difficult problem is "in no sense dependent on a preceding state of need" is manifestly untrue. The problem may be of real life or death importance or may otherwise have roused desire to such an extent that the thinker may experience an intense and almost agonising unrest until it is solved—an unrest that is almost as severe as that which arises from some urgent physiological need. Thus a trapped miner might endeavour to think out some method of escape; an embarrassed business man might consider how to raise money to tide himself over some financial crisis; or a scientist might struggle desperately to find the solution of some last difficulty that still blocks the way to an attractive theory or useful invention; in each instance the relief on finding the solution would be preceded by great tension and anxiety. In a second type of case, there may indeed be no obvious preceding state of acute need, but the problem may be such as immediately to appeal to us in virtue of some sentiment that we have formed. Here the existence of the sentiment (like the instincts which enter into it) makes us permanently liable (as McDougall would say) "to perceive and pay attention to" the matter with which the problem is concerned. If, for instance, we are "interested" in conjuring, we immediately desire to understand the methods employed in some new trick that we have witnessed. Here it is scarcely an exaggeration to say (along the lines of Plato's suggestion in the *Timaeus*) that there is a permanent unconscious need to know more about the subject and that the pleasure in solving the problem springs from the satisfaction of this need. In the third place, the problem may deal with a subject

that is entirely new to us—perhaps geometry. In this case it may quite well be, as Plato suggests, that our previous ignorance of geometry has been in no wise painful. Nevertheless, if we now derive pleasure from the solving of a geometrical problem, it is clear that our interest in it has been aroused, and the hormic psychologist would say that some fundamental urge (probably that of curiosity) has found a new outlet and that a new sentiment is in process of formation; if a Freudian, he might be inclined to look upon it as a new sublimation. But if we accept this formulation, we must agree that the need was there before the satisfaction—not indeed a specific need for geometrical knowledge, but a more general or more primitive need, which had hitherto been satisfied, though perhaps inadequately, in other directions.[8]

The distinctions here drawn may perhaps be illumined from another angle. There would seem to exist an analogy—perhaps more than an analogy—between the differences presented by our first and third cases on the one hand and the difference between what Drever[9] and some others have called "appetitive" and "reactive" tendencies upon the other. It is well recognized that in such fundamental urges as those of nutrition and sex there is an appetitive element, dependent (though perhaps indirectly) upon physiological condition, and a reactive element dependent upon a suitably stimulating object in the environment. If we are sufficiently hungry, we may actively search for food; food stimuli possess a "valence" (*Aufforderungscharakter*), as Lewin would say from the point of view of the Gestalt school.[10] But if we are not hungry, we may yet partake of food, if it is present and sufficiently enticing; and recent researches by Katz and others[11] have shown how, as regards food

[8] The case here is somewhat akin to that of falling suddenly in love, of which Plato and Freud have in their different ways both proposed a hormic explanation in terms of a prior unconscious need.

[9] *Instinct in man* (Cambridge, 1917) and *An introduction to the psychology of education* (London, 1922).

[10] Vorsatz, Wille, und Bedürfnis, *Psychol. Forsch.*, 1926, **7**, 294.

[11] For references to experimental observations bearing on this point, see David Katz, *Animals and men* (London, 1937), chap. vi, especially pp. 154, 195. In this chapter Katz very clearly draws attention to the distinction with which we are here concerned, which he designates the "two component theory." His terminology however is different from the older one of Drever, here adopted. Katz's term "need" corresponds to Drever's "appetite," while for Katz "appetite" is a need for a specific form of diet. Except for a certain difficulty in the choice of a suitable adjectival form (e.g., "needy" and "needful" seem scarcely appropriate), the term "need" is perhaps preferable to "appetite," as involving less change from established usage. On the other hand, there are also advantages in confining "appetite" strictly to physiologically determined needs and using "need" to designate any conscious tension, longing, or desire (including, for instance, the desire of the scientist to find the solution of his problem).

and sex, the requisite degree of attractiveness tends to vary inversely with the strength of the physiologically determined appetite. Now the first of our three kinds of intellectual problem seems analogous to the appetitively determined tendency; there is, in all the cases considered, an obvious antecedent need. In the second kind the need is less primary and is not consciously experienced in the immediately preceding period; there is, however, an obvious previous readiness to experience a need the moment the stimulus is presented. In the third case the quasi-appetitive element is still more in the background and the reactive element is much more prominent. Nevertheless, the hormic psychologist would assume with some plausibility that in the absence of some urge of curiosity we should refuse to be interested in the geometrical problem, in the same way that in the total absence of the hunger and sex urges we should fail to be stirred by appropriate edible and sexual stimuli, however attractive in themselves.

We see then that a pretty good case can be made out for the hormic view of feeling as regards all types of intellectual pleasure.

Aesthetic Feelings

Let us now turn to the second category of Plato's pure pleasures —aesthetic satisfaction. In the light of innumerable discussions on the nature of aesthetic enjoyment, we are fairly safe in asserting that the appetitive element, if present, is relatively unobtrusive here. It is generally admitted that any strong admixture of appetite destroys the aesthetic attitude. The antecedent need, if there is one, resembles that in the second or third classes of intellectual pleasure that we have just considered, rather than that in the first, and so far as mere introspection goes, it is usually true to say that the aesthetic pleasures are pure, in that no unpleasant craving is necessary for their enjoyment; as Joad puts it, "we are not made miserable because we are *not* listening to music."

Properly to weigh the evidence for and against the hormic explanation of aesthetic pleasure, we must, however, make a further distinction. Most writers on aesthetics describe two factors in aesthetic experience—that which depends on matter or content and that which depends on form, respectively (though, of course, the actual terms used vary considerably, and the distinction does not apply in quite the same way to all kinds of art). In so far as the pleasure depends on the matter, there is clearly something in common with intellectual enjoyment; interest must be present in both cases,

and as regards the understanding of our satisfaction in the themes or objects treated by the artist, psycho-analysts have done much service in showing that the work of art, as created or as contemplated, may (perhaps unconsciously) give expression to deep-seated desires, tendencies, or complexes; and they have to this extent greatly strengthened the hormic view. As regards matter or content we therefore seem justified in saying that the pleasure results from the satisfaction of conation, although, of course, the satisfaction differs from that of a non-aesthetic kind in ways that do not directly concern us here.

When we come to the pleasure connected with form, we enter a field which undoubtedly presents greater difficulty for the hormic theory. Here there seems no question of conation in the sense of goal seeking, of the kind that the hormic psychologist is inclined to regard as instinctual. The goal, if we may use the term here, lies only in the exercise of the perceptual activity itself. To this extent, art, as has often been pointed out, resembles the simpler forms of "play," as when we sing, or shout, or run, with no ulterior motive but just for the pleasure that these actions give us.[12] This pleasure in mere exercise has of course been recognized from Aristotle onwards; it is indeed the kind of satisfaction chiefly envisaged in Aristotle's theory of pleasure as perfect energizing,[13] a theory which at first sight contrasts strongly with the relief theory that Plato applies to his mixed (and perhaps to all) pleasures. But it is a form of pleasure which would seem to have received all too little attention at the hands of most modern psychologists[14] and it has not been brought into a really adequate relation to the prevailing modern systems, such as those of gestalt, behaviourism, psycho-analysis or hormic psychology. In all these systems there is a tendency to imply that living beings are fundamentally lazy, that they only act as a result of some tension or stimulus which upsets their equilibrium, and that pleasure results from the success of conation in re-establishing this equilibrium. If we are to retain the essential features of this assumption, we must, it would seem, understand it in a sense wide enough to allow of the existence of certain tensions which can

[12] Though, as is well recognized by all students of play, these simplest forms tend to become more complex by the creation of arbitrary or conventional goals, the seeking of which makes the play more satisfying, by enlisting the co-operation of more specific instincts and interests.

[13] *Ethics*, Bk. X.

[14] Unless indeed, with Spearman (*Psychology down the ages*, London, 1938, I, 327) we consider that in modern times Aristotle's theory has reappeared disguised in physiological form, as in the theories of Grant Allen, Marshall, and Lehmann.

be relieved by exercise as such. A conspicuous example of such a tension is the need that a healthy man feels to exercise his muscles when he has been engaged for a long period in some sedentary work. The inability which most civilized people feel to spend an evening by themselves without reading, writing, sewing, listening to the radio, playing Patience or indulging in some other activity, seems to indicate a similar need upon the intellectual side, and it may quite well be, as Woodworth for instance maintains, that in a certain sense our capacities are also sources of impulsive or motive power, inasmuch as they crave exercise or stimulation. McDougall has severely criticised this view, but even he admits that it may have a "modicum of truth,"[15] and it seems clear that (both in its relation to the hormic theory and for other reasons) the whole problem urgently demands further investigation. In dealing with the aesthetic pleasures connected with form, McDougall of course retains the hormic position, but with a somewhat unsatisfying lack of detail and precision. Thus he says,[16] "the (aesthetic) object evokes in us a multitude of conations that work together in delicately balanced harmony to attain satisfaction in a rich and full appreciation of the significance of the object." Spearman in his *Creative Mind* has endeavoured to show in much greater detail what these processes are and relates them in interesting and instructive fashion to the five quantitative and three qualitative "principles of cognition" as expounded in his *Nature of Intelligence*. But neither he nor McDougall has much to say as to why the object evokes in us "a multitude of conations," why we desire this "rich and full appreciation" of the aesthetic object.

If, with McDougall and Spearman (and, of course, with many others) we assume that we have this desire, then, on hormic principles, we can easily see that the fuller or less impeded the appreciation, the greater the satisfaction of our conation and the greater the pleasure, while anything that impedes this desire for appreciation is aesthetically unsatisfactory, i.e., arouses unpleasure; and the hormic psychologist may gratefully follow Spearman in his masterly analysis of the details of the process.

Granted this desire for the exercise of our capacities, we may say then that, here too, as regards the more difficult matter of the formal aspects of aesthetic pleasure, the hormic theory can satisfactorily account for the feelings that occur, even though we are

[15] *Psychologies of 1930*, p. 20. [16] *Op. cit.*, p. 19.

painfully aware that our present understanding of the nature and relationships of the conations involved is often far from adequate.

Sensory Feelings

Let us turn now to the third of the categories into which we have divided Plato's "pure" pleasures—that of sensation. Here we find that some instances can be easily accounted for on hormic lines, while others present much the same problems as those which are encountered in the case of aesthetic enjoyment, and are perhaps the hardest of all to fit into the hormic theory.

The difficulty for this theory is that, on superficial introspection, sensory feelings seldom, if ever, seem dependent on a prior conation. In some cases conation may seem altogether absent, as when we enjoy the warmth of a hot bath, contemplate a pleasing colour, or listen to a lovely tone. Sometimes again, as Stout suggests, disagreeable consciousness and aversion appear to coincide, as in toothache. In still other cases, the theory of psychological hedonism seems to fit the facts much better than the hormic theory; it seems much more natural, for instance, to say that we like lobster because its taste is pleasant, than to say that it is pleasant because we like it—and yet it is this latter state of affairs that the hormic theory demands. So forced and artificial does the hormic explanation seem in such cases, that even enthusiastic supporters of the hormic view begin to hedge and falter when they come to deal with sensory feelings. Thus Stout, while dealing with feeling in general, appears whole-heartedly hormic and says: "Whatever conditions further and favour conation in the attainment of its end yield pleasure. Whatever conditions obstruct conation in the attainment of its end are sources of displeasure. This is the widest generalisation we can make from a purely psychological point of view as regards the conditions of pleasure and displeasure respectively";[17] and he illustrates this thesis convincingly so far as the categories of action, ideation, and perception are concerned. But when he comes to sensory feelings he appears to be uneasy. He takes refuge in such sayings as that "there is always a potential conation" or that "the conative attitude is always lurking, as it were, behind the scenes";[18] and (writing, it is true, at an earlier date) he even changes surreptitiously to the hedonistic standpoint, completely reversing the causal relationship between feeling and conation, as when he says: "In

[17] *Manual of psychology* (4th ed., London, 1929), p. 392.
[18] *Groundwork of psychology* (2d ed., London, 1927), p. 22.

so far as the experience is pleasing, there is a tendency to maintain and develop it by whatever means may be found effective until its pleasure-giving capacity is exhausted or is overpowered by the inter-mixture of unpleasing elements. In so far as the experience is unpleasant, there is a tendency to discontinue it by whatever means may be found effective. Thus, on the level of mere sensation, agreeable feeling tone corresponds to the positive phase of conation and disagreeable with the negative."[19] Here the word "corresponds" glosses over the reversal of cause and effect, and the standpoint adopted is that which McDougall has designated "hedonism of the present," according to which "all action is prompted by the pleasure or the pain of the moment of experience."[20]

Of all hormic psychologists, McDougall is by far the most thorough and consistent. He recognises the difficulty with regard to sensation and attacks it boldly.[21] In some cases the obstacles collapse at the first resolute approach. Thus he reminds us that, in general, some sensory feelings are clearly dependent on bodily needs and conditions, this being strikingly the case as regards food and sex. Oral or genital stimulation, which may be intensely pleasant when there exists a corresponding desire, may become indifferent or unpleasant in the absence of desire. So far, feeling depends on those internally generated tendencies which Drever calls appetitive. In other cases, however (and here the argument is less immediately convincing), we must invoke reactive tendencies. Thus genital stimulation is a specific excitant of the sexual impulse and tends to generate desire, which may not previously have been present, and the more the desire grows, the more pleasant becomes the stimulation. Sweet, McDougall maintains, is a specific excitant of the hunger impulse, and pain a specific excitant of the fear impulse, hence the fact that sweet is nearly always pleasant (because it at once stimulates and gratifies the hunger impulse—*l'appetit vient en mangeant*) and pain is nearly always unpleasant (because by its presence it stimulates the fear impulse, and by its continuance it frustrates it, since the object of this impulse is removal of the stimulus). Similarly, we may suppose that every sensory stimulus of such a kind as habitually to possess a marked feeling tone is a specific excitant of some type of behaviour, usually of approach or withdrawal. Thus McDougall mentions ache as connected with the impulse to change

[19] *Manual of psychology* (2d ed., 1901), p. 243.
[20] *Psychologies of 1930*, p. 11.
[21] Especially in Pleasure, pain and conation, *Brit. J. Psychol*, 1926, **17**, 171.

the bodily posture, and unpleasant odours as connected with the movements of aversion that are themselves correlated with the emotion of disgust.

In this way the at first sight difficult task of applying the hormic explanation of feeling to the pleasures and unpleasures of sense can perhaps be achieved. It seems clear, however, that much work remains to be done before McDougall's view can be regarded as definitely proved and the hormic theory thus triumphantly established as regards every class of feeling. The remainder of our task here is to consider very briefly some of the problems that have still to be dealt with and to indicate in what direction solutions of these problems are most likely to be found.

Some Outstanding Problems

In the first place, we obviously require experimental verification of McDougall's doctrine that habitually pleasant and unpleasant sensory stimuli are "specific excitants" of particular conative tendencies. The classical methods of "impression" and "expression" here need to be employed with a new purpose in mind. In view of the great number of such stimuli this task is itself a very considerable one; and it is much complicated by the fact that the closeness and constancy of the connection between stimulus and feeling varies greatly from one stimulus to another, and, for the same stimulus, from one individual to another.

As regards the difference between stimuli, it seems likely that those stimuli, the responses to which depend largely on appetitive tendencies, are, other things being equal, more variable than those as regards which the reactive elements preponderate. This distinction is to a great extent coincident with that between the so-called "lower" and "higher" senses. The pleasures connected with the digestive, reproductive, and muscular functions depend intimately upon physiological condition, and display corresponding periodical fluctuations. The pleasures connected with sight and sound are far less subject to such fluctuations—and this is the case even when the higher senses are put in the service of appetitive tendencies; the visual perception of a bowl of choice fruit or of a lovely girl may in their different ways pleasantly stir the imagination even when the desire for eating or for sexual intimacy is absent owing to satiation or to other causes. Still more constant perhaps are the feelings connected with more purely sensory experiences which are less obviously linked up with appetite, e.g., a pleasing patch of colour or a musical note

which is agreeable in virtue of its pitch and timbre. It is, then, especially as regards the pleasures connected with the "higher" senses that the more difficult explanation in terms of "specific (reactive) excitancy" will have to be worked out in detail.

But, in spite of such constancies in any given individual, there are nevertheless great differences as regards the nature or intensity of the feelings aroused by almost any simple sensory stimulus in different individuals. Here again, the simplest case concerns the appetitively determined feelings. Recent experiments show that physiological factors may influence appetite in very specific ways, and thus perhaps account for many individual idiosyncrasies as regards food preferences. When animals have been experimentally fed on a diet which is deficient in some important respect, they tend to make good the deficiency, as soon as there is a possibility of doing so. "Similarly, after years of investigation on newly weaned infants (C. L.) Davis reached the conclusion that children if left to themselves choose correctly according to nutritive value and vitamins."[22] In this respect food preferences may reflect "the wisdom of the body," and individual differences in taste may correspond to a larger extent than is often imagined to individual differences of constitution.

But in view of the great capriciousness of individual taste as regards both the "higher" and the "lower" senses, and in view also of the fact that it is undoubtedly possible to acquire biologically detrimental tastes, we can scarcely hope to explain all individual differences in this way, and to this extent we must fall back on "reactive" tendencies. If we accept McDougall's hormic explanation of these in terms of specific excitancy, the problem arises as to how far these individual variations are due on the one hand to hereditarily determined differences (either in the strength of the impulse whose furtherance or frustration gives rise to the feelings concerned or in the strength of the link between this impulse and the particular specific excitant) or on the other hand to the development of the impulse or the link by the circumstances of the individual's life. There is evidence that considerable changes can be made by the process of conditioning, as regards our attitude even towards sensory stimuli the feeling tone of which we are accustomed to consider relatively constant. We may refer in this connection to Pavlov's experiment on the conditioning of the dog's salivary reflex to pain stimuli, an experiment which, we are told, succeeded in

[22] Quoted from Katz, *op. cit.*, p. 171, where further references will be found.

abolishing "even the slightest sign of defence reaction" when the dog was stimulated by "an electric current of great strength." Cauterization or pricking of the skin produced the same results, none of the changes in pulse or respiration that are otherwise characteristic responses to nocuous stimuli being observable.[23] Almost equally remarkable are Péto's observations on the reactions of young children to what are usually regarded as disagreeable smells.[24] He found that under the age of five, there were practically "no signs of aversion, reaction of displeasure or repulsion" even to the smells of putrefaction. Since there is no reason to suppose that children are deficient in the sense of smell, we can only assume that the strong attitude of aversion almost universal in later life (and exhibited according to Péto's results by most children over six) is either biologically determined by maturation or—as seems more likely—is acquired through experience, and probably through the behaviour of adults. Results such as these, in which a "normally" unpleasant sensation appears to be welcomed, or in which other "normally" unpleasant sensations appear to have become such as the result of experience, would seem to be very favourable to the hormic theory; at the same time they suggest that a great variety of individual differences in the feelings aroused by sensory stimuli can be explained hormically in terms of conditioning, and that there may be little need to postulate large differences in innate constitution, which, if they exist, might prove much more difficult to study or explain.[25]

If the attitude towards sensory stimuli—and the resultant feel-

[23] I. P. Pavlov, *Conditioned reflexes* (Oxford, 1927), pp. 29, 30.

[24] E. Péto, Contribution to the development of smell feeling, *Brit. J. Med. Psychol.*, 1936, **15**, 314.

[25] Incidentally, these results strongly suggest also that the "stamping in" of successful movements according to the "law of effect," which was originally interpreted hedonically by Thorndike (in a way that McDougall describes as "hedonism of the past") should be interpreted hormically. It is the success (i.e., the fulfilment of a conative tendency) which makes certain situations or reactions pleasant, even if they be of a kind to be normally unpleasant, or vice versa. Thus Pavlov's dogs had learnt to recognize the pain as a step to the satisfaction of eating, while Péto's older children had presumably learnt to dislike certain—originally pleasant or indifferent—smells, as connected with situations which called forth adult displeasure and which they themselves had come to consider disgusting. Muenzinger's experiments, showing that a shock accompanying a *correct* response may help in establishing this response (Electric shock for correct response in the visual discrimination habit, *J. Comp. Psychol.*, 1934, **17**, 267) seems to afford further strong evidence against the hedonic interpretation of the "law of effect."

Of course, even though we abandon any interpretation of the "law of effect" in terms of pleasure and unpleasure, there is still much to be learnt about the "confining" or "O.K. reaction" (as Thorndike has recently called it) which appears to be operative in trial and error learning. A recent symposium (*Psychol. Rev.*, 1938, **45**, 191) brought little general agreement as to the processes involved.

ing—can thus be radically modified by involuntary conditioning, the question naturally arises, how far a similar change of attitude can be brought about in a more conscious and deliberate manner. McDougall has little hesitation in saying that such a voluntary change of attitude is possible; he instances his own attitude on a certain occasion to the surgeon's knife, the case of fanatics "who voluntarily gash and bruise themselves without sign of disagreeable feeling" or of martyrs "who, in the exaltation of religious aspiration, accept the physical injuries inflicted upon them as contributing to their supreme goal, the glory of God or their own salvation." Experimental confirmation of the general influence of attitude upon the orectic aspects of sensory experience is amply forthcoming from experiments on aesthetic appreciation, such as those of Bullough[26] and of Myers and Valentine,[27] from experiments immediately concerned with attitude, such as that of E. F. Wells,[28] from more general introspective studies of feeling such as those of Wohlgemuth,[29] Nafe[30] and Young,[31] and from many incidental studies of suggestion, both with and without hypnosis, as well as from the more systematic work of Hull.[32] Washburn and Grose[33] made a more direct attack upon the problem as to whether one can voluntarily change one's likes or dislikes with regard to colour. They found that in the vast majority of cases it was possible to do so, but often only with the help of a shifting of attention or of an imaginary context. Finally, Yuan Pan[34] endeavoured to carry out a straightforward test of the hormic theory by instructing his subjects to adopt three different kinds of attitude: (1) a seeking or welcoming attitude, (2) an indifferent attitude, (3) an attitude of aversion, towards a great variety of stimuli of all sense departments,

[26] E. Bullough, The perceptive problem in the aesthetic appreciation of single colours, *Brit. J. Psychol.*, 1908, **2**, 406.

[27] C. S. Myers and C. W. Valentine, A study of individual differences in attitude towards tones, *Brit. J. Psychol.*, 1914, **2**, 68.

[28] E. F. Wells, The effect of attitude upon feeling, *Amer. J. Psychol.*, 1930, **42**, 573.

[29] A. W. Wohlgemuth, Pleasure-unpleasure, *Brit. J. Psychol., Mon. Suppl.* No. 6, 1919.

[30] J. P. Nafe, An experimental study of the affective qualities, *Amer. J. Psychol.*, 1924, **35**, 387.

[31] P. T. Young, Studies in affective psychology, *Amer. J. Psychol.*, 1927, **39**, 176.

[32] C. L. Hull, *Hypnosis and suggestibility* (New York, 1933), p. 17.

[33] M. F. Washburn and S. L. Grose, Voluntary control of likes and dislikes, *Amer. J. Psychol.*, 1921, **32**, 284.

[34] Yuan Pan, *The relation of feeling and conation*, Thesis in the University of London Library, 1930.

and noting the effect upon the feeling. He also conducted experiments on conditioning the reactions to pleasant and unpleasant stimuli, on providing motives for submitting to unpleasant stimuli, on suppressing the usual motor reactions to pleasant and unpleasant stimuli, and on observing the feelings accompanying successfully and unsuccessfully attempted tasks. His results throughout all this large field were, in general, overwhelmingly in favour of the hormic theory. The feeling tone of the total experience could nearly always be altered by an appropriate attitude, the experience connected with a normally pleasant stimulus becoming unpleasant and vice versa. Usually, however, this change in the feeling tone of the total experiences was, as in Washburn's and Grose's experiments, accompanied by some shift of cognitive content or cognitive emphasis. Thus in dealing with a normally unpleasant stimulus, attention might be paid to certain pleasant elements or aspects, or else it might acquire a pleasant meaning or pleasant associations. Or, again, consciousness might become predominantly cognitive and analytic, more or less excluding feeling altogether. In certain cases, moreover, one of the two following events occurred. In the first place, the stimulus might be "tolerated," i.e., no attempt was made to get rid of it; here the sensory unpleasure persisted, though there was a great reduction or a total disappearance of the unpleasure connected with frustrated conation. In the second place, the "unpleasant" sensory stimulus might be actually enjoyed in spite of the fact, perhaps indeed just because of the fact, that it was unpleasant. There is here, in this latter case, a production under laboratory conditions of a masochistic attitude, such as is exemplified more luridly in the behaviour of sexual masochists.

Thus Florrie, the flagellant, whose case is described in great detail by Havelock Ellis, says of her own experience: "Strange but true, one's keenest enjoyment (if so one may call it) is when the strokes are given in defiance of one's wishes and have passed the limit of endurance."[35] So also, in a milder form, for instance, does one of Pan's subjects enjoy the taste of quinine: "Although the sharp taste was strong, sour and acid, it was welcome as an intense sensation. It was electrifying, yet enjoyable." In such cases the hormic theory is satisfied, in so far as one part of the mind actually seeks unpleasant stimulation—even though from the standpoint of another part of the mind such stimulation may be "in defiance of one's wishes" and to that extent unpleasant. The simultaneously

[35] H. Ellis, *Studies in the psychology of sex* (Philadelphia, 1928), VII, 163.

present pleasure and unpleasure can both be adequately accounted for on hormic lines.[36]

But in spite of this ample evidence of the general position that feeling, even that connected with sensory experience, depends upon conation, there still remains one little difficulty. A study of Pan's vast introspective material reveals very few, if any, clear cases of a stimulus which is normally distinctly pleasant or unpleasant acquiring an opposite feeling tone, while the cognitive aspects, elements, or attributes of the sensation most clearly in consciousness remain unchanged. In the vast majority of cases a successful change of the affective tone of the total experience is brought about with the help of some cognitive readjustment, as the result of which pleasant elements are brought into conscious prominence and unpleasant elements are neglected; while in the two cases last mentioned, where there is no such cognitive adjustment but only a change of attitudes, the sensory feeling *in itself* remains unaltered (however great the change in the feeling of the mental state *as a whole*). It still remains possible, therefore, that certain of these elements are invariably, and in themselves, pleasant or unpleasant, and that their feeling tone is independent of conation.

This for the present must remain the last stronghold of the psychological hedonist, driven it would seem, from every other part of the field. In this one matter the hormic psychologist on his part may still be compelled to resort to the relatively unsatisfactory device of invoking the aid of unconscious (and therefore unintrospectable) conations. How these are to be described is still a matter for speculation. We may of course attempt an explanation in terms of Plato's subliminal "depletions" or of Burlton Allen's[37] "analogue

[36] The whole problem of pleasure in suffering, which has been brought into great prominence by psychoanalytic work, is one which still presents many obscurities, which are of course not confined to the sphere of sensory feeling. Thus the precise relations between sex and pain, between sex and anxiety, between aggression and guilt, is still a matter of speculation and discussion. On the whole, however, the data available and the present balance of opinion fit in well with the hormic view that, here too, the pleasant elements are connected with the satisfaction, the unpleasant elements with the frustration, of impulses; the complexity arising, partly from the fact that the satisfaction of the one impulse demands and depends upon the frustration of another impulse, and partly from the further fact that the forces at work may be "overdetermined," as, for instance, in the case where the conations that are satisfied through suffering are both "libidinal" and moral in nature. It would, however, be altogether beyond the scope of the present article to follow up this theme through the intricacies of sexual masochism, of abstinence and asceticism, of "reaction formation" of the "need for punishment," and of moral control in general. For a preliminary discussion of some psychological aspects of asceticism, see the author's *Asceticism & education*, Report of the Conference of Educational Association, London, 1935.

[37] A. H. Burlton Allen, *Pleasure and instinct* (London, 1930), p. 14.

of conation in the sense organs and the body generally which may condition the appearance of bodily pleasure and unpleasure." Or again, we may extend the concept of "appetites" or "needs" to cover all cases of invariable feeling tone. In view of our existing knowledge concerning the varying closeness of connection between sensation and specific response, it may be, however, more helpful to suggest that, in the case of sensations which appear to be invariably pleasant or unpleasant, we are confronted with the extreme case in which the link between sensation and conation is so firmly established that it cannot be broken by any of the methods hitherto employed, in the same way that it is difficult or impossible to abolish certain reflexes.

It seems on the whole unlikely that the theory of psychological hedonism, that once made such vast claims and is now reduced to the doubtful tenure of one tiny fraction of its original territory, will hold out permanently even here. Nevertheless, the fact that it cannot for the moment be dislodged is a standing challenge to the hormic psychologist to prove his point in this one matter too, and thus establish his sway over the whole realm of feeling. It may be that, with sufficient patience and determination, the conations involved could be fatigued or satiated in the same way that the appetitive tendencies can be satiated, and that there will then occur a change of feeling tone of the same kind as that which can be induced so much more easily in the case of food and sex. Or again, it might be possible (with the aid of the right incentives) to mobilise counter conations of sufficient strength to overcome the conations which, on McDougall's hypothesis, are "specifically excited" by the sensations concerned. The incentives available in the laboratory are, we must remember, for the most part far inferior to those which may be aroused, for instance, by the religious fervour[38] which McDougall thinks may have rendered certain martyrs insensitive to pain. But whatever the ultimate issue, it is to be hoped that, with the help of new and more delicate methods of research, it may soon be possible to solve this last remaining fundamental problem, which, though practically it may seem of little moment, is yet clearly of great significance for the whole theory of orexis.

[38] Hypnotic suggestion may perhaps be of service here. In this connection it is interesting to note that according to recent experiments (C. L. Hull, *op. cit.*) suggested analgesia in hypnosis, while abolishing introspectively observable pain and all voluntarily controllable manifestations of pain, also greaty reduced, though it did not quite abolish, such manifestations—as those affecting the pulse—which are not under the control of volition.

PERSONALITY TRAITS RELATED TO CONSERVATISM AND RADICALISM

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For some time there has been a good deal of talk on many campuses, as well as some study, regarding the personality traits of radicals as compared with conservative students. It has been assumed that there is a "radical-conservative" distinction, measurable and ranging from one extreme to the other, with most individuals lying between the two. On that assumption, tests have been devised to measure that pattern. Using such criteria as judges' estimates of the subjects' tendencies toward one extreme or the other, and intercorrelation between the tests, the tests appear on the whole to be valid measures.

Before going further, it seems necessary to qualify the term "radical." It appears more than probable that what the tests really are measuring are "liberal" rather than radical tendencies; further, that the students emerging from the tests as "radicals"—possibly extreme radicals—are actually only liberal. But since the tests are devised and used to measure "radical-conservatism," this paper will use those terms.

There seems to be little convincing evidence as to what constitute in general the personality traits of the radical as compared with the conservative student. When mere adjectives characterizing "radical people" are asked for, a typical list almost invariably and inevitably includes the following: hasty, neurotic, emotionally unstable, maladjusted, erratic, bright, forward-looking, and impulsive. Adjectives characterizing the conservative are much less clear cut, referring in one way or another mainly to the tendency to be "unwilling to change." When more exact, or perhaps technical, adjectives are requested, characterizing either type with reference to such traits as introversion-extroversion and self-sufficiency, it immediately becomes a matter of personal speculation rather than a mere reflection of popular opinion.

While some research[1] has been done on the question, evidence on several traits seems either entirely lacking or else conflicting. So, in order to supplement what is already known, it appears worth while to investigate in an objective way some of the characteristics of upper-class college women making extreme scores, either way, on conservative-radical tests.

The Lentz C-R Opinionaire[2] was given to 267 students as the basic measure of conservatism and radicalism.[3] This test has sixty statements, covering a wide range of topics. The individual is required to mark each item True or False, thus indicating his attitude on such matters as race relations, educational policies, scientific and theological conflicts, pacifism, and many other controversial issues. The tests were given to groups of varying size, all but one of them, a Northern group,[4] constituting psychology classes in Southeastern colleges for women. In no case did the students know the purpose of the Opinionaire, that is, what it was designed to measure.

A variety of other tests was given: the Bernreuter Personality Inventory, which was administered to all 267 girls, the Henmon-Nelson Tests of Mental Ability, the Morris Trait Index, and the Downey Will-Temperament Test, each of which was given to at least two groups. Other data included scores on a general information test of about 400 items, devised by an advanced class in Education, speed of tapping, speed of decision, measured not only by Test 1 in the Will-Temperament Test, but also by a timed test requiring individuals to check the one they "liked better" in each of 50 pairs of similar items, e.g., apple-pear, and such facts regarding personal background as size of family, of income, and of home town. In handling the data, each group was treated separately when correlations were figured. While that inevitably increased the probable error, statistically speaking, still it seemed a more satisfactory way than making one or two large groups, for thus checks were afforded on every measure.

[1] Good summaries are to be found in R. Stagner, *Psychology of personality* (New York, 1937), pp. 167-186, and P. M. Symonds, *Diagnosing personality and conduct* (New York, 1931), pp. 214-237.

[2] Devised by Theodore F. Lentz and colleagues, and published by the Character Research Institute, Washington University, St. Louis, Mo., 1935.

[3] In the case of two groups, a list of items from the more elaborate test by G. B. Watson, Survey of Public Opinion on Some Religious and Economic Issues, was given as a check, to see whether there was correspondence between the results of the two tests. Since the correspondence was close, no other check was made, but Lentz's test was accepted as an adequate measure.

[4] There was no significant difference between the scores of the Northern and Southern groups.

Since "the radical" seems to be for most people a more definite and meaningful type, and easier to characterize with adjectives (whether correct or not), than does "the conservative," this paper will use the radical as the person to be described. In cases where there proves to be a contrast, obviously the reverse of the statement made will be true of the conservative.

Results

Table 1 presents a summary of the facts discovered: In every group, the correlations between radicalism and, respectively, intelligence, general information, introversion, self-sufficiency, and dominance were positive, though low, ranging from about .2 to .35. The correlations between radicalism and speed of decision and of movement were also about .2 to .35, but negative. Small coefficients, ranging from about .1 to —.1, were found to express the relation between radicalism and, respectively, emotional instability, intensity, and breadth, teaching ability, and size of family and of income. In no case is a correlation more than three times the probable error, and usually it is much less; but the consistent recurrence of any given coefficient seems to compensate, to a degree, for absence of statistical reliability. A clear differentiation between the patterns is that 73.3 per cent of the radicals answered "yes" or "?" to the question (Bernreuter) "Are you troubled with feelings of inferiority?" while 70.7 per cent of the conservatives answered "no." (The use of "radical" and "conservative" in the preceding sentence means the 30 per cent of the students at each of the two extremes; the middle 40 per cent of the students are disregarded.)

Table 1

Correlations (product-moment) between radicalism and other traits

	N	r	P.E.	N	r	P.E.	N	r	P.E.
Intelligence	76	.206	.07	35	.224	.11	..	....	...
General information	36	.308	.10	28	.297	.11	..	....	...
Introversion	60	.209	.08	30	.305	.11	36	.201	.10
Self-sufficiency	64	.209	.08	37	.279	.11	28	.349	.11
Dominance	33	.227	.11	37	.296	.10	..	....	...
Emotional instability	36	—.045	.10	37	—.153	.10	30	.059	.12
Emotional breadth	36	.176	.10	28	—.148	.12	..	....	...
Emotional intensity	36	.054	.11	28	—.109	.12	..	....	...
Teaching ability	36	.093	.11	30	—.135	.12	..	....	...
Speed of movement	36	—.213	.10	37	—.295	.10	30	—.298	.11
Speed of decision	36	—.240	.10	37	—.209	.10	30	—.270	.11

Students from small towns were almost without exception conservative, while the radicals came from the open country and from cities. In Table 2 is presented a comparison between the scores made on a variety of traits by students from large as compared with small towns. As a rule, students from cities score higher on mental tests than do students from villages; so, since the score for conservatives was found to be higher for small-town students, at first it seemed possible that it was merely the factor of intelligence that was showing up in connection with the C-R Opinionaire. On both the Detroit and the Henmon-Nelson tests for intelligence, however, as well as on the general information test, there proved to be no significant difference, though city girls proved more introvert and more self-sufficient.

TABLE 2

MEDIAN SCORES OF STUDENTS FROM LARGE AS COMPARED WITH SMALL TOWNS

Population of Town	Conserv.*	Introv.	Self-Suff.	Dom.	Detr.	H-N	Inf. (errors)
Over 5,000							
Median	50	55	35	50	160	50	59
Interquartile range	30-73						
Under 5,000							
Median	68	40	25	33	155	51	58
Interquartile range	54-85						

*Wherever the abbreviations used in Table 2 occur in this paper, their meaning is as follows: Conserv.= conservative, Introv.=introvert, Self-suff.=self sufficiency, Dom.=Dominance, Detr.=Detroit (mental test), H-N.=Henmon-Nelson (mental test), and Inf.=Information test.

As is to be observed, without exception, the correlations in Table 1 are low, whether positive or negative. A very few extreme cases not conforming to the trend have the effect, when correlations are calculated, of making the relationship seem lower than it actually is. Hence, in order to determine whether or not the apparent relationship really did exist, the median scores on various tests and the range of the middle 50 per cent were determined for all the radicals as a group, and for the conservatives, again taking the 30 per cent at each extreme. This technique shows a more distinct differentiation between the two groups than that indicated by the coefficients of correlation, since atypical scores are thus eliminated. These two sets of figures are given in Table 3, and in every case except the last, which indicates no difference, the differences have high statistical reliability, ranging from 85 to 100 cases in 100. There is no difference in the matter of neurotic tendency, but radicals are better

informed, have higher mental ability, are more introvert, more self-sufficient, and more dominant.

TABLE 3

MEDIAN AND RANGE OF MIDDLE 50 PER CENT OF SCORES MADE BY RADICALS AND BY CONSERVATIVES

	Inf. (errors)	H-N	Introv.	Self-Suff.	Dom.	Neurotic
Radical median	49	61	64	37	53	51
Conservative median	66	44	57	17	37.5	51.5
Radical middle 50 per cent	39–61	58–64	45–77	15–71	42–67	26–70
Conservative middle 50 per cent	61–67	41–48	35–67	9–31	22–54	29–67

Perhaps it should be stated that intercorrelations between scores on the Bernreuter tests are calculated as a check on their reliability. Two groups are selected at random for this purpose, and the average coefficient for each test is reported. In every instance the coefficients correspond closely with those reported by Bernreuter. Below in Table 4 are to be found those correlations as well as certain others bearing on the study.

TABLE 4

CORRELATIONS BETWEEN VARIOUS FACTORS

Factors Correlated	Dexter	Bernreuter
Self-sufficiency and introversion	Average of 2 r's —.368	—.28
Self-sufficiency and neurotic tendency	Average of 2 r's —.388	—.39
Self-sufficiency and dominance	Average of 2 r's .491	.55 and .50
Self-sufficiency and intelligence	Average of 2 r's .126	
Self-sufficiency and speed	Average of 2 r's .176	
Intelligence and speed	Average of 3 r's .251	
Intelligence and introversion	Average of 2 r's .092	

To anyone familiar with the usual findings in the matter of correlations between various traits, certain inconsistencies in the coefficients reported in Table 1 are immediately evident. Since correlations between mental ability and speed, and between radicalism and intelligence are usually slightly positive, one might expect that between radicalism and speed also to be positive. However, it is negative in every instance. That seemed to the writer to require explanation. On inspection of the data, it was discovered that in almost every case a "well-informed-and-quick" girl proves to be conservative, while a "well-informed-and-slow" student was radical. In view

of the definite relation between radicalism and intelligence (or being well informed), it would appear that if a person of superior ability were to take a little more time to deliberate, he would become less conservative. (Whether or not that would be an advantage is not within the field of this study.) A partial correlation between degree of information and radicalism, with the factor of speed eliminated, pushed the correlation between the two from about .3 to .4. See Table 5 for other partials correlated.

TABLE 5

PARTIAL CORRELATIONS BETWEEN VARIOUS FACTORS

Factors correlated	Factors eliminated	Partial correlations
Information and radicalism	Speed	.413
Information and speed	Radicalism	.338
Radicalism and speed	Intelligence	—.359
Introversion and self-sufficiency	Radicalism	—.468

Another inconsistency is that involving the factors of introversion, self-sufficiency, and radicalism. The two former correlate positively with radicalism, but negatively with each other. Again, inspection shows that while most introverts are low in self-sufficiency, radicals are high. But the discovery of that fact leads to a much greater apparent inconsistency: If radicals are relatively high in self-sufficiency, why do over 70 per cent of them reply "yes" when asked if they are troubled with feelings of inferiority? The writer is unable to do much more than speculate as to the answer. It seems entirely possible, however, that, being relatively independent in their judgments, i.e., differing from the majority (conservative) opinion, they may well be "self-sufficient" in that sense—indifferent to the usual views held, and even unaware of being "radical"; but in that they may have been frequently criticized for their views, they may be consciously concerned as to whether, after all, the majority opinion may not be the right one. In other words, they are thoughtful, and not too cocksure either that their opinions are correct or that they will be cordially received. Two unusually "radical" but mature and well-balanced students did, in fact, indicate that such was the situation with them. They said that they "couldn't help" thinking certain things, but even as children had frequently suffered because of it, and hence hesitated about giving expression to their ideas. Probably that is about what a conscious

"feeling of inferiority" amounts to. Allport's statement[5] that a sense of inferiority is compensated for by radical tendencies, is supported by this study.

On figuring a multiple correlation between radicalism and the three factors showing the closest relationship to it, i.e., self-sufficiency, low speed, and being well informed, a coefficient of .864 results. This indicates a rather remarkable degree of connection between the combination of the three and the criterion. Should later studies substantiate this figure, it would have such high predictive value for individuals that one might safely predict that a person, at any rate a college woman, with those traits would be radical.

In regard to the adjectives mentioned in the opening paragraph, commonly listed as descriptive of radicals, a further effort of a less objective sort was made to see whether or not they could be said to characterize radical students. An alphabetically arranged list of twenty students comprising the ten most extreme radicals and conservatives, respectively, was submitted, of course without any explanation, to several faculty members and executive officers, with the request that an opinion be expressed regarding the "general character traits" of each girl on the list. Without exception, each of the radicals was complimented for her good sense, saneness, and reliability. So also were a few of the conservatives, but there could be no question but that the radicals were a more admirable group of personalities. Three of the ten conservatives had recently been in more or less serious disciplinary situations, and only one of the ten secured as high a character rating as the average radical. The only appropriate adjectives in the popular collection, listed earlier as being descriptive of radicals, are "bright" and (probably) "forward-looking." The hasty, impulsive, erratic, etc., characterizations seem not at all to describe them.

No effort was made in this investigation to assemble, or even read, all the earlier reports of work along this line. One or two, however, may well be mentioned. Moore[6] finds no relation between radicalism and intelligence, or emotional stability, but does find radicals more rapid than conservatives in pure reaction time. If *accuracy* is involved, however, their speed is reduced. He also finds that radicals offer 88 per cent more "resistance to majority influence" than do conservatives; i.e., they do not "care what people say." The

[5] F. H. Allport, *Social psychology* (Boston, 1924), pp. 372-373.

[6] H. T. Moore, Innate factors in radicalism and conservativism, *J. Abn. & Soc. Psychol.*, 1925, **20**, 234-244.

main agreement between Moore's results and those of this study is in finding no evidence for the popular assumption of emotional instability on the part of radicals.

Allport[7] finds that radicals tend to be extrovert and conservatives introvert. The writer's conclusions are the reverse of his on this point.

SUMMARY

Radicals, as compared with conservatives, are usually brighter, better informed, slower in movement and in decision, are more introvert, self-sufficient, and dominant, have more feeling of inferiority, and rarely are the product of small towns. There is no distinction between the two types in regard to size of family or of income, emotional instability or intensity, or teaching ability.

[7] F. H. Allport and D. A. Hartman, Measurement and motivation of a typical opinion in a certain group, *Amer. Pol. Sci. Rev.*, 1925, **19**, 735-760.

THE FACTORIAL ANALYSIS OF EMOTIONAL TRAITS

PART I

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PROBLEM

Professor Spearman has kindly invited me to contribute to the pages of this journal a brief, nontechnical account of my theory of the general and group factors underlying the primary emotions, and in particular to consider its relation to the analogous theory put forward by Webb. My views perhaps scarcely deserve the title of a theory; in the first instance they profess to be merely a verbal statement of certain statistical results. The results were obtained by factorizing marks or measurements intended to express in quantitative terms the more outstanding individual differences in emotional behavior. The original account was presented in a paper read at the Manchester meeting of the British Association, and was briefly summarized, with illustrative tables, in the *Annual Report.*[1] Further experience has in the main confirmed the inferences I then drew. Perhaps therefore, I cannot do better than reproduce the main points of the original description, supplementing it by occasional reference to further material gathered during later years.

My primary object was to apply to the analysis of emotional or conative characteristics the statistical methods worked out by Professor Spearman himself for the analysis of intellectual or cognitive characteristics. As everyone knows, it was his remarkable achievement to demonstrate that a single general factor apparently enters, in a greater or a lesser degree, into all intellectual activities

[1] The general and specific factors underlying the primary emotions, *Brit. Assoc. Annual Report,* 1915, pp. 694-696. Further aspects of the work were described in other papers, read at meetings of the same association (*Brit. Assoc. Ann. Report,* 1913, pp. 168-169; 1923, pp. 215-239). What I understand by "primary emotions" and the nature of the "general" factor and the "specific" (or "group") factors respectively has been described in the chapters on Temperamental Conditions in *The young delinquent* (London, 1925), pp. 400-515.

and determines their intercorrelations. The existence of more specialized capacities he does not deny; nevertheless, on actual investigation, he finds them to be comparatively narrow in their operation, and far less important in their influence than the general factor.

Earlier work on the emotional differences between individuals tended to emphasize the supreme importance of specific tendencies or types. Little or nothing was said about the possibility of any "general factor." Just as a quasi-phrenological doctrine of "faculties" had reigned in cognitive psychology, so a quasi-phrenological doctrine of "propensities" still held the ground in conative psychology. Starting rather from a biological and sociological standpoint, my own teacher, William McDougall, had recently published the first systematic and scientific attempt to review the whole field of individual motive.[2] He held that "all the springs of human conduct" were derived from about a dozen primary propensities or instincts, each accompanied by its own characteristic emotion, each with its own special stimuli and its own distinctive manifestations. This hypothesis was immediately criticized[3] on the ground that human "instincts" were entities as mythical and vague as the so-called human "faculties." "What original human nature shows is not seven unitary tendencies, but a multitude of special responses to a multitude of special stimuli." None of the separate instincts, it was argued, possesses any real bond of unity except the possession of a common popular name. "There are forty-seven groups of causes of crying; but what evidence is there that the child who cries easily for one cause will cry just as easily for another?"

Here, as it appeared to me, were evidently questions which could not be decided by armchair argument, but only answered in terms of correlation. The controversy was being fought out in terms of a sharp contradiction: Does this mode of behavior invariably go with that, or does it not? It seemed obvious that the proper issue to put was: How closely does this mode go with that? Zero correlation seemed quite as unlikely as perfect correlation.

Practical psychology continued to adopt still broader classifications. Throughout the nineteenth century almost every professional psychologist appended to his textbook a version of the old doctrine of temperamental types;[4] and the traditional views on temperaments

[2] *Introduction to social psychology* (London, 1908).

[3] More particularly by Thorndike, *Educational psychology*, Vol. I, *The original nature of man* (New York, 1913).

[4] An excellent historical and critical account of the doctrine of "mental types" is to be found in Wm. Stern's *Differentielle Psychologie* (Leipzig, 1911), chaps. xii-xiv and Appendix I.

or diatheses were incorporated in most authoritative medical writings on mental deficiency and nervous disorders.[5] Human beings were classified under two, four, or eight more or less antithetical headings. McDougall himself believed that any search for group factors or type factors was foredoomed to failure. He believed in the multiplicity and narrowness of specific factors alike on the cognitive and on the conative side. "We have to recognize [he wrote some years later] a multiplicity of factors. The search for a small number of types or categories has no reasonable basis. The literary skill and the scientific prestige of a Jung or a Kretschmer do but give color and standing to a hopeless quest. The combinations are infinitely varied."[6]

In this country the doctrine of temperaments found its most enthusiastic adherents among the popular upholders of the faculty doctrine—namely, the phrenologists, with Dr. Bernard Hollander at their head. By the beginning of the twentieth century, however, academic psychology had grown more and more inclined to reject both doctrines together. "Such antitypic schemes imply that there is one group of individuals who react more readily with sorrow than joy, and more readily with fear than with either; and another group reacting in precisely the opposite order. Surely the truth is that in all of us anger is stronger than grief, sex stronger than anger, and self-preservation strongest of all." But once again these are evidently questions to be answered not with a sweeping "yes" or "no," but by a statement of correlations: Is the order of strength the same in all individuals, so that the correlations between persons are perfect? Are they imperfectly but mainly positive? Or are they sometimes negative?

The foregoing problems are continually encountered in a practical form by the psychologist who is concerned with the diagnosis and treatment of mental subnormality among schoolchildren; and it is among schoolchildren that the theoretical study of the issues raised can be most easily undertaken. The "mentally defective" were in those days considered to form a special intellectual type standing completely apart from the normal. But the schools were beginning to realize that their difficulties were not confined to cases of intellectual subnormality—the dull, the backward, the mentally defective; they had also to consider problems of discipline and character. Hence

[5] E.g., A. F. Tredgold, *Mental deficiency*, 1908, pp. 120-123 (sections on Temperament and on Emotion); L. Guthrie, *Nervous disorders in children* (1909), pp. 18 ff.

[6] *Energies of men* (New York, 1932), pp. 189-191.

the children submitted for special examination to the educational psychologist or school doctor included, not only pupils who were retarded in schoolwork, but also children who gave trouble or aroused anxiety because of their delinquent or nervous "propensities." Most school medical officers believed in a "criminal type," whom they believed to be certifiable as "morally defective"; and the study of nervous disorders had led many to promulgate the notion of a "nervous type"—or possibly a group of "neurotic types."

At Liverpool, where I was then working, these practical problems of school and society were joined with others arising out of alleged temperamental differences between sexes and races. The advisability of mixed or coeducational schools was then hotly discussed. Many teachers opposed the proposal because, though some readily admitted that there were no large differences in intellectual capacity between the boys and the girls, nearly all believed that the two sexes "possessed opposite temperamental types." Liverpool, too, was rather conscious of its mixed population: from the counties lying to the north, particularly from the coastal towns and villages of Cumberland and Westmoreland, tall, fair-headed families came into the city, claiming descent from the Norsemen and the Vikings. From Wales came numerous short, dark-haired immigrants, who were popularly supposed to possess the temperament of the so-called Celt. In the Irish quarter, where Sir Frederick Marquis had recently built a university settlement, both distinctive "racial types" were to be found, possessing very different religious and political beliefs and proving a constant source of conflict and trouble.

At the University an active school of anthropology and human geography took considerable interest in the question; and in the social surveys of the Merseyside, which were then being planned, the so-called racial problem seemed likely to have a prominent part.[8] The academic psychologist was again highly skeptical about the possibility of a scientific study of such matters. He doubted whether any temperamental differences directly attributable to "race" existed,

[7] Cf. Guthrie, *op. cit.*, chap. iv.

[8] An allied problem was that which arose out of the presence of a large Chinese and Anglo-Chinese problem in the same part of Liverpool. Recently one of my students, Mr. P. C. Hu, has concluded a suggestive article, Study of the intelligence of Anglo-Chinese children (*Eug. Rev.*, 1938, **30**, ii, pp. 109), where he finds that the real underlying group differences are much smaller than the individual differences, and much smaller than is popularly supposed: here again the social problem springs rather from popular views and popular prejudices than any conspicuous differences in innate qualities or even in overt behavior.

and, if they did, whether they could be discovered or measured by any means at present available. But what I wished to investigate was, not merely the actual differences (if any), but quite as much the nature and effect of popular views about those differences. As we have since come gradually to realize, it is rather views about mental differences between the sexes than any obvious differences themselves that have largely governed official policy; and views about race, even when demonstrably false, may at times have startling political consequences.

Whether our knowledge is scientific or not, we have to act on such knowledge as we imagine we possess. Alleged defectives must be certified; delinquent children dealt with; and the neurotic, if possible, treated and cured. More and more therefore it has become evident that the educational psychologist must study emotional as well as intellectual characteristics. Side by side with the investigation of tests for intelligence and educational attainments, he must seek methods for diagnosing and classifying cases in which the problem is conative rather than cognitive, and arises out of behavior and conduct rather than out of lack of progress in the subjects of the school curriculum.

Methods

My own investigations started in four elementary and secondary schools at Liverpool, and were carried out with the assistance of an energetic collaborator, Mr. R. C. Moore. They were continued later on a larger scale in the schools under the London County Council. For adults our subjects consisted partly of working men and women attending the clubs at the University Settlement in Liverpool and the Tavistock Place Settlement in London, and partly of University students.

Three modes of assessment were tried. First of all, we experimented with the possibility of "emotional tests." We used both (a) the method of expression (measuring changes in respiration, circulation, automatic movements, and the psychogalvanic reflex) and (b) the method of impression (the effect of the various emotions on interest, attention, apperception, memory, and the like).[9] Secondly,

[9] The tests have been more fully described in the paper on The mental differences between the sexes, *J. Exper. Ped.*, 1911-1912, **1**, 380 ff. The experimental part of the research was carried out in Sir Charles Sherrington's laboratory in the Physiological Department; and it is pleasant to have another opportunity of expressing my deep indebtedness to him, not only for these facilities, but also for his constant kindness and encouragement from those early days onward. To my colleagues in the same department, Professor Roaf and Professor Mottram, I was also much indebted for continual suggestions and advice.

we drew up a brief schedule of emotional and moral characteristics, based mainly on McDougall's scheme; and asked teachers, social workers, and friends and acquaintances of the examinees to allot each individual a mark for each characteristic on a standard deviation scale, the marks being based on personal impression. Thirdly, a long and detailed questionnaire was prepared enumerating the chief objects and situations supposed to stimulate the primary emotions and the chief reactions which were supposed to characterize them. Observers were requested, no longer to set down merely their personal impressions about the relative strength of a few abstract qualities, but to record concrete behavior, and that in such a way that quantitative marks could be objectively derived. The most successful collection of data that I obtained by this last procedure related to two groups of University students. Each year members of the biological department spent the summer on the Isle of Man, working at Porth Erin Biological Station and in its neighborhood. Here there was some approach to primitive and unsophisticated conditions of life. Men and women mixed freely: long walks and climbs over cliffs and hills, violent thunderstorms in the open, minor perils on the sea, contact with wild creatures, living and dead, isolated individuals (and pairs) getting lost by accident or design—all these varied situations freely provoked the whole gamut of primitive emotion—fear, curiosity, pugnacity, sex, disgust, tenderness, submissiveness, leadership, sorrow, laughter, and joy—and at the same afforded numerous opportunities for unobtrusive observation in a way which would have been impossible in the classroom or the town. Marks were allotted for the promptitude, frequency, intensity, duration, and after-effects of the various emotional reactions, according to a prearranged scheme.

This highly intensive study was only possible with very small numbers—just over 50 in all. The whole review covered rather over 300 children and adults (to which about another 400 have since been added) assessed by somewhat rougher means. In my original paper 5 tables of observed correlations and 10 of partial or residual correlations were given. One typical sample of each appears in the printed report. I hope in due course to publish a complete set of revised figures and a revised factor-analysis in detail. Here, however, a technical discussion of the detailed figures would be out of place. I propose therefore to limit myself mainly to the concrete conclusions which can be drawn.

Results

The Reliability of the Observers

The natural procedure was the calculation of correlations and the analysis of the coefficients in terms of factors or components along much the same lines as had originally been proposed by Professor Spearman for the examination of results obtained by cognitive tests. He has distinguished two primary correlational problems—(1) the assessment of consistency or reliability and (2) the assessment of validity or efficiency. Thus his first questions always are: (1) do the test measurements or observational judgments appear to be consistent with themselves? and (2) do they efficiently measure the characteristics which they are intended to measure, and what precisely are those characteristics? In dealing with conative as distinct from cognitive assessments, similar problems arise, though in a slightly modified form.

(a) *Consistency of Examiners.* The first point then is to determine whether the tests or other methods of observing or examining the several emotional traits yield assessments which are in agreement with themselves. If teacher A declares that Tommy is more liable to fear than anger while teacher B declares that he is more liable to anger than fear, it is evident that one or other observer is unreliable, possibly both; and neither of their assessments is of very much value for further work. A similar inference will be drawn if teacher A declares Tommy is more joyful than George and teacher B reverses the order.

Where all the examiners assess all the examinees, it is most convenient to correlate the examiners and to carry the summation over the examinees. When (as almost unavoidably happens in practical work) different examiners observe different individuals, it is often instructive to correlate the examinees, and carry the summation over the traits: this, however, leads to a type of correlation not commonly used in actual testing, since it is generally assumed that the standards of test will remain the same even in different hands, and that the relative frequency of the different test performances will remain the same in different groups.[10]

[10] These assumptions are not always fully justified: a notable instance is that of the Binet-Simon tests, where correlating persons revealed unsuspected sources of inconsistency (or so-called "unreliability"). But the importance of this further criterion is seen most clearly when we turn from tested capacities to character traits: in illustration of the method and its value I may refer to the subsequent investigation into character-qualities carried out by Miss Spielman any myself during a *Study of vocational guidance* under the National Institute

Coefficients obtained by the former method are termed reliability coefficients; and the "examiners" whose reliability is thus assessed may be either persons or tests. The reliability of both, for example, was generally assessed in early work on intelligence testing; and there it was soon found that the test was nearly always more reliable than the teacher or personal observer.

In the conative field exactly the opposite result was found. Of the three methods of assessment described above, the first—that of experimental testing—proved to have the lowest reliability, and the last—that of indirect estimate—the highest. Accordingly, the method of expression was dropped entirely, except as a minor problem of laboratory research. The method of impression required only portable apparatus; and was so far therefore a method suitable for use in schools: yet it clearly needed further development before it could be of practical service either for individual diagnosis or for more general statistical inquiries, and I shall not deal with it further in these pages.

As regards the two remaining methods, further work has fully confirmed our original conclusions: "the Method of Indirect Estimate gives far higher reliability coefficients—ranging usually from .60 to .70 as against .45 to .50 by other procedures; and generally its results seem more consonant with those of general experience and research along other lines, e.g., in the comparative rarity of negative coefficients among the observed correlations."[11] So far as possible, therefore, this method has been adopted for all further theoretical investigations, though for practical purposes it is often necessary to fall back upon that of Direct Judgment. The direct judgment of character-qualities is by far the easiest method to employ, but proves to be full of possible fallacies. Significant correlations are easily obtained; and, even in the earliest inquiries, the analysis suggested clear-cut types, and striking differences of temperament between the two sexes and between different social groups presumed to represent different racial types; but there remained a strong suspicion that these correlations existed rather in the minds of the observers than in the minds of those who were observed.

A striking instance, which I have often quoted, is shown in the negative correlations that this method commonly produces between such antithetical tendencies as liability to joy and to sorrow respec-

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of Industrial Psychology and the Industrial Health Research Board (1926, pp. 65 ff.).

[11] *Brit. Assoc. Ann. Rep., loc. cit.*, p. 695.

tively. When a teacher has marked a child high for joy, he seems almost automatically to rank him low for sorrow, and vice versa. When the same children are assessed from records of their actual behavior, it commonly appears that the child who is excessively gay and merry on one occasion is the child who shows excessive grief on another; the child who laughs uproariously during his Christmas party cries most bitterly when it is time to go home. The merriment and the tears are thus, both of them, symptoms of the same excitable and unrestrained disposition. It is only, as we shall see, after the effects of this general underlying characteristic have been ruled out that the antagonism between contrasted emotions begins to display itself undisguised: for example, among older or more mature children and still more among adults, who have acquired a greater uniformity and stability in regard to emotions generally and their outward display, we begin to find that the inner demand for self-consistency, due to the formed habits and ideals peculiar to each person, begins to make one individual predominantly cheerful, and another predominantly morose. The fallacy becomes very obvious when observers are asked to justify their ratings. "The same child can't be two opposite things at one and the same time," says one student. The answer is that the same child may often be "two opposite things" at *different* times, and hence his character cannot be completely judged by reference to "one and the same time" only.[12]

(b) *Consistency of Examinees.* The influence of unconscious assumptions about the relations among the traits assessed is brought out still more clearly when we correlate not the persons judging but the persons judged. An obvious case is difference in disposition attributed to the two sexes among adults. In nearly all the direct judgments about adults women were ranked high for the maternal instinct, and well above the average for any emotional interest aroused by persons, not quite so high for submissiveness and fear, very low (in those pre-war days) for sex, and lowest of all for pugnacity and anger; the rankings for men showed almost exactly the opposite order.[13] Thus, when assessed by the method of direct judgment, the correlation between the average order for men and women respectively proved, in one batch of students, to be —.74;

[12] It is interesting to note that the same fallacy occurs in judgments of character based on photographs. I find that the novice, confronted with a portrait in which a child is caught laughing unrestrainedly, is apt to describe that child as being of a happy and cheerful disposition; the experienced student is more likely to infer that the child is excitable and demonstrative.

[13] Cf. Mental differences between the sexes, *J. Exper. Ped.*, 1911-1912, **1**, 32-33.

whereas, when the batch was assessed by the method of indirect estimate, the correlation rose to +.31. In assessments based on the latter method the same contrast between the two sexes is, as a matter of fact, latent; but it only emerges into an actual negative correlation when the "general factor for persons" has first been removed. This is a common experience when such methods are employed: popular and traditional conceptions tend to magnify the more specific differences; the more general characteristics are taken for granted—which means in practice that they are minimized or even ignored.

The Relations between the Traits Observed

Correlations were first calculated for the different kinds of stimuli and the different kinds of reaction. A certain amount of clustering was discernible, corresponding to McDougall's "instincts," but it quickly became clear that any search for these more specific factors would be impossible without a preliminary study of the more general factors that obscured and overlaid them. To study these latter, the original assessments were pooled under headings closely corresponding to the several instincts; and statistical analysis was first directed to the intercorrelations between these eleven traits.

General Factor

The first and most striking feature of the tables thus obtained was that practically all the intercorrelations were positive. Rarely, in any of the tables, each of which contained 55 coefficients, were there more than half a dozen which were negative. The proportions of the various figures fitted the requirements of a hierarchy only in a very rough way; but the coefficients themselves were high enough to suggest that the correlations could largely be explained by a single general factor, common to all the measurements correlated.

This, of course, is so far merely a mathematical deduction expressed in mathematical terms. Until we inquire what precisely has been measured, we are not justified in identifying the abstract factor with any concrete psychological quality whether of "temperament" or "brain." All that we have proved is that, with a fair degree of probability, we can, from an assessment for one kind of emotional behavior, make plausible estimates for the rest, or, from a weighted average of all the assessments, deduce a very close estimate for any single one. I ventured to formulate the conclusion in concrete terms as follows: "an excessive liability to

one particular instinct tends (at all events, as a general rule, though not of necessity in any single individual) to be accompanied by a liability more or less excessive to most of the remainder." "The correlations," it was noted, "are clearer among children than among adults, and among delinquent children than among virtuous. The boy who steals is nearly always secretive; usually disposed to petty sexual faults; often a truant; not infrequently quarrelsome and spiteful; and yet sometimes, incongruously enough, an arrant coward, an easy dupe, spasmodically generous, warmly affectionate, and prone to heart-broken tears of remorse. Thus, as with intellectual capacities, so with emotional: a single central factor pervades them all. The central factor underlying intellectual processes has been described as "general intelligence"; the central factor underlying instincts and emotions may be termed "general emotionality."[14]

If, as the theory of human instincts maintained, these primary conative tendencies are inherited and innate, it would seem to follow that the general factor, common to them all, must itself be inheritable, and that differences in this factor would be at bottom inborn. Accordingly, following the procedure adopted in studying general intelligence, the next step was to determine, if possible, how the factor-measurements deducible from the weighted assessments point to some general innate tendency. Here, as everywhere else, on the emotional side as on the intellectual, it is impossible to draw any absolute line of cleavage between what is inborn and what is acquired. Nevertheless, the distinction is of practical importance. In dealing with temperamental subnormality, as in dealing with educational backwardness, one of the first questions that the practical psychologist is tempted to put is this: How far is the subnormality due to characteristics that are innate, and therefore, as such, permanent and irremediable?

Once more, however, it is in the predictions and probabilities that his interest mainly lies. Hence, by "inherited" he means merely, in the first instance, (a) that there is a demonstrable correlation between a child's behavior soon after birth and his behavior later and all through life, and (b) that there is a demonstrable correlation between the behavior of members of the same family such as could not be explained by environmental influences. As partial evidence for the first of these statements, I found that, when children who were assessed at the ages of 6 to 8 were reassessed at 10

[14] *The young delinquent* (London, 1925), pp. 506-507. Cf. The unstable child, *Child Study*, 1917, **10**, 61-78.

to 12, there was an average correlation between the two sets of factor-measurements amounting to .87. As partial evidence for the second statement, several of my research students have reported significant correlations between factor-measurements for members of the same family, even when they have not been brought up together. But further investigations of this kind are surrounded with many difficulties. Hence little weight can be attached to the rough results so far obtained.[15] I ventured, nevertheless, to put forward the notion of a second innate characteristic, over and above that of intelligence, which seemed to me of almost equal importance in clinical work. Parallel to the definition that I had proposed for intelligence—"innate general intellectual capacity"—I defined this hypothetical character as "innate general emotionality."

In terms of this characteristic it would seem that we may usefully distinguish two further categories of subnormal children: first (corresponding to the innately "dull" on the intellectual side) the innately "unstable"; secondly, (corresponding to the "intellectually defective") the "temperamentally defective." Just as the intellectually defective are in the main merely severer and certifiable cases of innate dullness, so the temperamentally defective are in the main merely severer and certifiable cases of innate instability. The phrase *temperamental deficiency,* I have argued, should be substituted for the more familiar designation *moral deficiency,* since moral qualities are largely acquired and therefore in theory at any rate remediable.[16] The concept of moral deficiency, which was avowedly based on the concept of a moral sense, implies that there

[15] Later, indeed, it appeared that there was at least one important difference between intellectual qualities and emotional or moral. The former appear to be much less affected by training or by social circumstances than the latter. Lack of intelligence sets a definite limit to what the school can teach. Emotional instability may certainly make character-training much harder, but it does not constitute such an insuperable barrier; and in practice cases of so-called moral or temperamental deficiency prove far more amenable to treatment than intellectual deficiency.

[16] The diagnosis of mental deficiency, *Stud. Ment. Ineffic.,* 1920, **1**, 50. Cf. also Delinquency and mental defect, *Brit. J. Med. Psychol.,* 1923, **3**, 168-178. Strictly the "unstable" group does not quite coincide with what I might call the "emotional" group. A person of high intelligence can carry a good deal of general emotionality without losing his mental equilibrium. Hence, overt instability as observed in actual behavior depends, not only on innate general emotionality, but also in part on lack of general intelligence and possibly on lack in inhibitive control. These two further influences, however, seem to play a minor role: so that, for practical purposes, the unstable and the emotional usually coincide.

The conception of "temperamental deficiency" as due to an innate excess of general emotionality was accepted in the *Report of the Mental Deficiency Committee* (appointed by the Board of Education and the Board of Control), 1929. Cf. Pt. I, p. 9, Pt. IV, pp. 49-51. The legal term "moral deficiency," though admittedly misleading, had of necessity to be retained.

is an innate general moral factor. I do not deny the existence of an abstract general factor underlying moral behavior; but I should argue that it is far more complex than the general emotional factor, and to a much smaller extent dependent on innate tendencies.

If we provisionally accept McDougall's view of emotional reactions—a view which after all is simply the current notion rendered more definite and precise—we may go on to construct a more concrete picture of the physiological basis of this general emotional factor. For McDougall, as for most other writers, the emotions form the chief sources of mental energy: indeed, for him they are the sole sources of mental energy.[17] But this view provokes a further question. Is the energy thus produced common to all the instinctive mechanisms? Or is it available only for that particular conative system within which it was generated? To put it in McDougall's words: "Does each propensity generate its own current? Or is there a central power-house?" "There is something," he adds, "to be said in favor of both views."[18] The demonstration of a common abstract factor is more consistent with (though it is of course no proof of) a common concrete source.

If we like to indulge in neurological speculation, we may picture the essential ingredient in the common factor as consisting in the sum total of available conative energy. Since the term "energy" must in the last resort have a physical interpretation,[19] I should identify "conative energy" with the neural energy liberated by any stimulus, but liberated most freely by the inner organic stimulation that forms the first response to an outer emotional stimulus. This explanation seems in keeping with current physiological and psychological hypotheses. The mechanisms underlying the emotions are generally

[17] Most other writers, while accepting the first statement, appear to deny the second: acquired interests and habits are presumed to be capable of generating energy of their own (cf., e.g., Woodworth, *Dynamic psychology*, pp. 44 ff., and p. 67).

[18] *Energies of men*, p. 50. McDougall's view that the driving force found in acquired habits and interests is genetically derived from the inherited instincts implies that he inclined towards the latter alternative; or rather that he held that, though energy might be generated within any one particular system, it could nevertheless be transmitted to other distributors.

[19] For this reason, I myself find it difficult to attach a clear meaning to "intellective energy" as a concrete explanation for g. I find it easy to think of "energy" as responsible for conative manifestations; I find it difficult to think of it as responsible for cognitive awareness. Aveling (*Directing mental energy*, p. 173) recognizes two forms of mental energy—cognitive and conative. I should fully admit that conative energy enters into cognitive processes; but I find it difficult to conceive of two kinds of energy. Cognitive capacity I regard rather as the capacity for the organization of that energy in virtue of the more or less systematic structure formed by the conducting channels.

regarded as devices for generating or at any rate for strongly reinforcing, nervous energy. Moreover, the whole nervous system is conceived as forming, potentially at least, a single interconnected set of conducting-paths. Consequently, nervous energy liberated in any one portion is, apart from special local conditions, capable of spreading to any other portion; it is only restricted to relatively definite channels because, in virtue of the innate or acquired resistances of the synapses, and of the condition of the whole system at any given moment, certain paths remain relatively blocked, while others become exceptionally free.

From the figures I have cited and the explanation I have put upon them it would seem that the instinctive mechanisms described by McDougall are by no means so sharply separated as his original exposition appears to have suggested to his readers. The propensities themselves are not clear-cut, like the simpler reflexes of the older textbooks. "A man's motives are no mere additive collection of independent impulses: rather the emotions themselves are but special differentiations of a primal emotional energy, an *élan vital* or fundamental will to live."[20] Moreover, the sources of energy are not to be conceived as lodged exclusively in separate and unrelated "centers" in the fore-brain, in the mid-brain, or elsewhere in the nervous system. In part they lie outside the nervous system itself, and arise largely from the incidental stimulation of the endocrine glands and from the effects of their secretions. Now the glandular reactions produced by one violent emotion, for example, fear, are to a large extent the same as those produced by other violent emotions such as anger. The net results would seem to be that the whole neuro-muscular-glandular system may be conceived as constituting one vast and general reservoir of conative energy.

These conclusions are equally in keeping with the psychoanalytic theory of a central fund of *libido*. This doctrine implies that emotional excitement aroused by one item of experience may be diverted to produce or reinforce what at first sight seems a wholly unrelated reaction: unsatisfied sex excitement or obstructed anger may issue in symptoms of anxiety and fear. "I postulate," says Jung, "a hypothetical fundamental striving which I designate *libido*. This concept is synonymous with psychic energy. This energy may also be designated as *horme*, force, urge, impetuosity, zeal."[21] "Physical energy may be applied at different points or converted into different

[20] *The young delinquent*, p. 423.
[21] *Analytical psychology* (New York, 1928), pp. 347-348.

forms—light, electricity, or movement of masses; but it remains fundamentally the same. So it is with psychical energy; there is one and the same *libido* that manifests itself now in self-assertion and again in sex desire."[22]

It has also been suggested that the general emotional factor that appeared in my own correlations might be identified with the "second general factor" demonstrated by Webb in his study of character and intelligence.[23] So long as no other "general factors" were recognized besides intelligence itself, the identification was naturally tempting.[24] Now that it is almost universally admitted that a "general factor" is in the first instance simply that weighted function of the measurements which is responsible for the greatest portion of their variance, the nature of the factor is seen to be dependent on the particular traits selected for the inquiry.

Webb's primary interest, as the subtitle of his monograph shows, lay in "an exact study of character"; mine in an exact study of the primary emotions, i.e., of the innate bases of character rather than of the fully developed character itself. One hundred and ninety-four training college students and 140 schoolboys were tested by him for intelligence and assessed by prefects or class-teachers for a number of intellectual, moral, and social traits. In his list of traits, however, only 3 out of 48 correspond with McDougall's primary emotions—anger, cheerfulness or joy, depression or sorrow (among the boys fear was apparently substituted for depression); the remainder (apart from intellectual qualities) are described as "moral qualities" and "the deeper social virtues", and include more particularly those that are of special importance in school or college progress (conscientiousness, extent of mental work, etc.). On eliminating general intelligence by partial correlation, he obtained a significant set of correlations between eight particular traits, which he grouped into two sections. Section A (conscientiousness, trustworthiness, kindness on principle, tendency not to abandon tasks from changeability or in the face of obstacles) showed large positive correlations with "*profoundness* of intelligence"; section B (anger, eagerness for admiration, bodily activity in pursuit of pleasure and games) with "*quickness* of intelligence." The whole table of par-

[22] *Psychological types* (New York, 1923).

[23] Character and intelligence, *Brit. J. Psychol. Mon. Suppl.*, 1915, **3**, 1-83. A concise summary is given by Spearman, *Abilities of man*, p. 359, with the essential table of correlations, p. 347. My own brief description cannot do full justice to the suggestiveness of Webb's whole investigation.

[24] I attempted to give my own view of their relations in my article on The unstable child, *Child Study*, 1917, **10**, 68 ff.

tial correlations formed what I should term a bipolar hierarchy with cyclic overlap—nearly all the symptoms of profoundness being negatively correlated with those of quickness.

He does not work out saturation coefficients; but applies the intercolumnar criterion. This shows that "a second general factor, prominent on the character side, exists." He decides (and I think rightly) to describe the factor in terms of section A rather than of section B. Such traits as conscientiousness and kindness on principle, he argues, are "lessons derived from social education"; these lessons will affect character "in proportion as they persist." He therefore concludes that the new factor is either identifiable with or closely related to "persistence of motives." By this, as he explains, he means something closely akin to Muller's perseveration, the secondary function of Groos, Heymans, and Wiersma, and Ach's Will rather than Ach's perseverating determining-tendencies (*if*, as Ach maintains and Webb would appear to doubt, the two are really distinguishable). The most general formula that he can find is "consistency of action resulting from volition or Will." He therefore proposes to designate the second general factor w in distinction to the first general factor g.

Webb's full discussion makes it quite easy to see how far his general factor, w, and my general factor, e, coincide and how far they differ. They resemble one another because, as Spearman puts it, Webb's factor is "not really cognitive at all, but conative."[25] My factor is also conative. Thus both enter into voluntary behavior; and individual differences in both form an essential element in what may be called character. So far as they overlap, my factor is the negative of his. Anything making for emotional instability must, *ipso facto*, hinder the steadiness or persistence of moral motives. Webb himself points out that the three characteristics which he groups under Section B (the traits correlated negatively with w) include what he calls "instability of emotions (No. 4)." Trait No. 4 was primarily defined as "readiness to become angry"; but apparently Webb assumes that this will be closely correlated with readiness to show other emotions and may therefore be regarded as a symptom of instability. Instability itself, however, he seems to regard as a consequence rather than as a cause: it is, in his view, merely a secondary symptom of the nonpersistence of motives. I regard the emotionality as primary, and should be tempted to regard the nonpersistence of motives as the secondary effect. Indeed, in a

[25] *Loc. cit.*, p. 359.

more heterogeneous group I should expect persistence of motives to show a positive correlation with intelligence, just as instability shows a small but appreciable negative correlation. Accordingly, I should describe both the instability and the nonpersistence of motives as the result of an excessive strength of all the primitive emotions in a person whose intelligence was too weak or too undeveloped to control them.

Thus, the essential difference is that Webb's factor represents what is largely an acquired characteristic, whereas mine is intended to represent a characteristic that is mainly innate. Webb was concerned rather with fully developed moral qualities, and hence made no attempt to select traits or points of conduct that were uninfluenced by training or environment; on the other hand, although I cannot claim to have excluded post-natal influences, I endeavored to obtain assessments for simpler and more primitive reactions. Webb's general factor expressly includes the results of "social education"; whereas mine denotes, in theory at any rate, something that is common to the inherited instincts. I have no objection to regarding Will as a general factor, if indeed it can be shown that there are high correlations between "willing" in its different manifestations. On the contrary, I should regard such a result as a most important contribution. But Will must represent the keystone of character, not its foundation or base. It denotes an organizing or consolidating factor, or rather the fact of organization or consolidation itself and is thus a late and complex product, not an innate or initial quality of the individual mind.

The relation between the two conative factors, it would seem, is not unlike the relation between the cognitive factor of general intelligence, which is usually supposed to be innate, and the broader factor of general educational ability, which includes acquirements built up by intelligence out of the educational environment. Just as the child who is dull of intelligence will find it almost impossible to acquire high educational attainments, so the child who has a high degree of innate general instability will find it hard to achieve the steady moral habits, the self-control, and the purposive consistency which are expected in a civilized community. To sum up, then, it may, I think, be said that Webb's factor is nearly but not quite the inverse of mine, being slightly more complex and more influenced by acquisition but for that very reason it is, no doubt, easier to establish, easier to diagnose, and possibly more important in practice.

NEWS AND NOTES

The Tenth International Congress of Medical Psychotherapy in Oxford, July 29 to August 2, 1938.

For 1938 the annual Congress of the International Society for Medical Psychotherapy (held at Oxford, July 29 to August 2, 1938) as arranged by the British Section of the Society, in co-operation with other interested bodies, viz., The British Medical Association, The National Council for Mental Hygiene, and The Royal Medico-Psychological Association. The importance attributed to psychotherapy in Great Britain was demonstrated by the facts that the members of the Congress were received by His Majesty's Government, and that Oxford University conferred the honorary degree of doctor on Professor C. G. Jung, the President of the Congress.

Oxford provides a very suitable background for a congress, and the British colleagues did their best to make all feel comfortable. There were about three hundred delegates, from seventeen countries, between whom personal contact—almost if not more important than the strictly scientific proceedings of congresses—was easily established. This was facilitated by quartering everyone at colleges, mostly at Balliol, where in the beautiful hall all the members had their meals together, while in the garden conversing groups could be seen throughout the day.

The principal themes of the proceedings were: (1) Psychology of the Various Phases of Life; (2) Psychotherapy and Psycho-somatic Problems. In the following account the contributions are discussed as they group around the principal themes and not in chronological order.

Jung opened the Congress by formulating fourteen points concerning which all psychotherapeutic schools readily agree. The Swiss Section had worked out these points in July, 1936. The efforts of Jung and of the International Society to find such a common basis are very commendable, because in this way one of the chief earlier objections to psychotherapy disappears.

Under the first main heading, viz., Psychology of the Various Phases of Life, child psychology occupied a dominant position. Groeneveld (Holland) spoke on Early Childhood and Its Mechanism. He described the interplay of two extreme tendencies, "the one towards the appreciation of the most concrete realities, and the other towards the most extravagant phantasies." Künkel (Germany) advocated his *Wir-Psychologie*. He contended that even the small child has a "we-feeling," i.e., is social and not egocentric—an opinion which incidentally, curiously differs from the opposite and almost universally held view. Loewenfeld (Great Britain) arranged a demonstration of the various remedies applied at the Institute of Child Psychology, of which she is the director. Boenheim (Great Britain) elucidated a series of important points in the development of the child, showing that many nerv-

ous disturbances are associated with the child's physiological and psychological development. He stressed the importance of "the healing power of Nature." Bierre (Sweden) also spoke about this factor in treatment and about environmental influences. He concluded by stressing prophylaxis as the program of the future.

Wile (U. S. A.) in a paper on Open Clinic Treatment for Problems of Juvenile Behavior, described in an unusually amusing way the arrangement of his clinic and the treatment of the children. Everything is done in public as it were; there are rows of chairs for the parents, and along one wall chairs for visitors. The child and the parents are questioned, and the whole treatment—including the somatic—takes place in this assembly. It is evidently Wile's opinion that it is a great advantage to make the parents participate in the treatment. Wile described other good points of the open clinic which cannot be denied. However, to the majority of Scandinavians and others of a more "reserved" nature this method would hardly appeal. In any case, it makes great demands on the tact and personality of the physician, not to mention his and the parents' sense of humor. The special problems of the age of puberty were treated with marked lucidity by Miller (Great Britain) in his paper on The Importance of Diagnosis and Treatment of Disorders of Adolescence.

In his lecture, Analytic and Synthetic Processes in Different Phases of Life, the Dutchman, van der Hoop, continued his efforts to fuse the schools of Freud and Jung. The psychotherapist should support Freudian analysis with synthetic tendencies, especially in certain periods of the development of personality. Also Rambouts (Holland), in his address on Psychotherapy and the Development of Personality pointed out that the means and aims of psychotherapy have to be different in the various phases of the development of personality.

The psychological problems of the mature personality (the man in the forties) were treated by several speakers. Brown (Great Britain) in his lecture on Psychological Problems of the Mature Personality expressed the view that the essential problem was "sublimation, the opposite of regression, a movement forward to a fuller development." This lecture could perhaps be described as typically English—being a mixture of at times finely developed abstract thinking and of weighty practical proofs, together with an almost naive and ready-made morality. An amusing contrast was provided by the address, Le Demon de Midi, by Reponds (Switzerland). He related some examples of how the man in the forties unexpectedly shows erratic amorous behavior. Hattingberg's (Germany) Love as a Process of Maturation gave, in a way, an explanation of such cases. He mentioned how to certain individuals love comes at those stages of their lives when emotional stress is accumulated in such a way that they cannot cope with it otherwise. He showed further how the personality of Goethe has gradually grown in this way, and considered it probable that the great psychological forces, which are at work during these periods, may very frequently find an outlet in love affairs, quite incomprehensible to the outside world, or promote a development of the personality on the lines laid down by Brown as sublimation. Finally Völgyesi, the central figure in Hungarian psychotherapy, spoke

about Stage Fright and Neuroses in Professional Life.

The second principal theme was treated in a series of lectures which clearly showed the significance of psychotherapy in daily practice. Unfortunately, neither Flanders-Dunbar (U. S. A.) nor Heyer (Germany) was present, but there was enough of interest. Of the collaborators of the Tavistock Clinic (Great Britain), Wittkower spoke about Personality Studies in Ulcerative Colitis, and Wilson on The Psychogenetic Factor in Haematemesis. Both speakers have dealt with similar subjects previously. A comparison of a carefully followed up case history with an independently and cautiously collected personal history of patients indicates that the onset of a disease is in a direct connection with such events in the patient's life as have produced emotional stress.

The method is identical with that introduced by Halliday in his work on asthma. Parallel cases have been worked out, by Wittkower and Wilson with diseases formerly regarded as purely physical. The object of these new and painstaking investigations is to find out: (1) whether an important psychological factor can be found in the aetiology of the mentioned diseases; (2) if so, what is the nature of this psychological factor; and (3) whether certain common characteristics are to be found in those patients. The results are very suggestive and will undoubtedly give rise to new and far-reaching psychological researches, which are likely to throw light on the special psycho-somatic dynamics in cases of this kind.

Clifford-Allen, also from the Tavistock Clinic, spoke on The Relation of the Psyche to the Endocrine Glands. He gave mainly a survey of this important problem, but concluded by saying that in his opinion all hypersecretory endocrine diseases (excluding neoplasms) were to be considered as psychogenic. Gali (Hungary) spoke about The Influence of Tuberculosis on the Mental Life of Patients, while Stokvis (Holland) dealt with Psychotherapy in Circulatory Diseases. Annau (Yugoslavia) communicated some cases illustrating the psychotherapeutic possibilities in organic nervous diseases.

In his lecture, Zur Hysteriefrage, the neurologist Pollak (Czechoslovakia) demonstrated a cerebro-pathological view of hysteria, e.g., he asserted that hysteria, as well as focal diseases, were caused by a displacement of quantities of energy, and that both groups were dominated by the same, ordinary, neuro-biological laws. Even if this may be said, it cannot justify Pollak's disregard for the results of psychological research and for the established theories of hysteria. Without understanding the psychological phenomena one can as little form an opinion of the function of the brain, as one can consider psychology fully satisfactory from the scientific point of view, without being brought into relation to the biology of the nervous system.

The Congress was concluded by Jung, who answered some questions; however, on the morning of August 2 there was an unofficial discussion. The afternoon was spent at different places in London, partly at the Maudsley Hospital, partly at the Tavistock Clinic, partly at the Children's center where the delegates could see the great energy with which psychotherapy is pursued in England. The visit to the Tavistock Clinic was of especial interest. This clinic was started by a single man, Crichton-

Miller, with a view of providing ambulatory psychotherapy to patients who otherwise could not afford treatment. Crichton-Miller began with a few physicians only, but now there is a staff of about seventy, and also some social workers, elocutionists, etc. The patients are sent by their family physicians, and their treatment is undertaken only after a consultation with these. There is a section for children, one for adults, and now a special section for psychosomatic diseases. In 1937 as many as 1,133 patients were treated, and the long waiting-lists show that such a clinic is highly useful. Apart from treating patients, instruction in medical psychology and psychotherapy is given to medical students and young doctors.

N. CHR. LUNDING (*Danish Congress Delegate*) and OLUF BRÜEL (*President of Danish Group*).

BOOK REVIEWS

CLINICAL PSYCHOLOGY. By C. M. Louttit. New York: Harper & Brothers, 1936. xx + 695 pp. $3.50.

In order to describe the text more definitely in terms of the author's own delimitations, the title should have been *A Clinical Psychology of Childhood and Adolescence*. His position that one person cannot "be equally skilled in dealing with both children and adults" is open to serious questioning. This is particularly true if one accepts the idea that the problems of adult adjustment are the result of unresolved childhood difficulties.

Since the conception of what constitutes the field of clinical psychology definitely sets the limits of a text of this type, it is particularly important that an author's position on that point should be both clearly stated and sound. In the main, these criteria are met. Thus exclusion from the field of clinical psychology of cases "primarily organic" is stressed. It is particularly significant that there is equally stressed the point that clinical psychology is a highly specialized field and as such is as much closed to the physician as is the primarily organic closed to the clinical psychologist. Basic, again, is the author's position that in so far as psychiatry is dynamic and not simply organic, in so far as it deals with disorders resulting from emotional conflict, it "is practically coincident with . . . clinical psychology."

On the other hand, one must question the validity of the distinction made between mental hygiene and clinical psychology. The position is taken that the former is interested in prevention while the latter deals with "conditions already existing in the child."

The text is divided into four parts, Of these, the first deals with the more formal aspect of the clinician's work; the anamnesis, examination, and psychometric methods. In Part II are considered those problems arising from variations in ability. Included are discussions of mental deficiency, superiority, school retardation, and specific disability in school subjects. Part III is devoted to "primary behavior problems," and Part IV, "problems correlated with organic disabilities."

The basis upon which the major and more important portions of the text, the last three parts, are developed, is found in this brief quotation: "All children seen in clinics exhibit behavior difficulties. Such difficulties may be classed in three major categories: (1) Those secondary to an inferiority or superiority in general abilities of the sort called 'intelligence'; (2) those secondary to an organic disability; and (3) primary behavior problems, or those which are not based on either of the foregoing."

It is necessary to note further the author's division of primary behavior problems into two classes: the direct, in which "the behavior evidently is the result of imitation of, or has patently been learned from, members of the social environment"; and in-

direct, in which "it is evident from the history that an intermediate step appears between the influence of environmental situations and the complained-of activity."

Throughout there is adequate emphasis upon the artificiality of all divisions; their constant overlapping; and the fact that they are merely aids to the clinical approach to the individual case.

There are some important points that seem to be treated too dogmatically. For example, there is presented the form for recording test data that is used in the author's clinic. This provides only for recording successes and failures for each test, with a small space at the end for noting special responses. While there is an important group of clinicians who would agree with this procedure, others feel that there is much to be gained by verbatim recording of all responses.

Again, in referring to the "higher feeble-minded, and lower normal groups" the statement is made that the social adjustment of the individual "in the last analysis must be the criterion of feeble-mindedness." There are psychologists who would disagree with this position.

A review is not the place for presenting arguments upon even important controversial questions. A comprehensive textbook, however, is not justified in presenting in relation to such questions only the position with which the author happens to be in agreement.

While at times, particularly in the section on psychometrics, the treatment tends to be of survey or schematic type, one must bear in mind the breadth of the field covered. Sources for more detailed information are also supplied. There is an abundance of carefully selected illustrative case material. The organization is excellent.

One is impressed with the author's recognition of the clinician's need to use all available sources of data and of the importance of the contributions of all environmental factors to the individual's behavior. As a whole, this book is a real contribution to the clinical psychology of childhood and adolescence. It is probably the best text now available in that field.

HARRY W. CRANE.
University of North Carolina.

CLINICAL AND EXPERIMENTAL STUDIES IN PERSONALITY. By Morton Prince. Second revised edition. Edited by A. A. Roback. Cambridge, Mass.: Sci-Art Publishers, 1938. 671 pp. $6.00.

The author of *Clinical and Experimental Studies in Personality,* Dr. Morton Prince (deceased a little less than a decade ago) was one of the world's leading medical psychologists. His work can well be characterized as a classic in psycho-pathology, indispensable to any student in the field. Although Morton Prince was influenced both by French and German medical psychology, he is by no means an uncritical follower. On the contrary, his appraisal of schools to which he is indebted is full of keen and original evaluation, both critical and appreciative. His volume constitutes a well-selected and representative series of articles, a considerable number of which were first published in various medical and psychological journals. As at present these articles are unavailable or very difficult to obtain, their assembly in book form, even at the time of the appearance of the first edition of the studies, was a valuable and worthwhile undertaking. In spite of the fact that each article in itself is a

well-rounded whole, there is a logical continuity from chapter to chapter. Morton Prince, with the mind of a medical man, presents clear and exhaustive clinical descriptions of a large number of his own cases, but, like the scientific psychologist, he also describes innumerable laboratory experiments by which he has, in an original manner, attempted to "tap the subconscious," or as he himself calls it, the coconscious processes of his patients. His methods here are variable, including the use of hypnosis, crystal gazing, automatic writing, the recording of the psychogalvanic reflex, etc. The final chapters of the book state the author's position to the more than two-thousand-year-old Mind-Body Problem.

The revision in the present edition of Morton Prince's work consists essentially in a modernization of terminology; a modernization which the editor, Dr. A. A. Roback has accomplished with skill and understanding. To him, as well as to the reviewer, both of whom were closely affiliated with Morton Prince during the time he held a chair at Harvard University, the necessity of a second edition of Dr. Prince's work undoubtedly appears as a hopeful sign of a broadening outlook among psychopathologists; a broadening beyond the oftentimes sectarian viewpoints of many professionals feeding upon unduly catholic Freudian doctrine.

HELGE LUNDHOLM.
Duke University.

A SOURCE BOOK OF GESTALT PSYCHOLOGY. By W. D. Ellis. With an Introduction by K. Koffka. New York: Harcourt Brace, 1938. xiv + 403 pp. $5.00.

In this book Dr. Ellis has evidently tried not so much to make a representative selection of Gestalt literature as to make accessible to English readers such papers as would best supplement the material already existing in English. This has been done sometimes by direct translation but more often by a kind of condensation which if ill done would result in something pretty bad. That he has done a good job of the difficult task he set himself is a tribute to Dr. Ellis's judgment. This does not mean that either the reviewer or anyone else would make precisely the same selection or the same distribution of emphasis that he has made, though these also have much to commend them. The condensations of experimental papers are much fuller than those of even the most detailed textbooks, and since the corresponding pages of the original are indicated in the margins, omissions and even the degree of compression can readily be determined.

The book presents abstracts or summaries (amounting sometimes to condensed translations) of thirty-four articles and one book (Koehler's *Physische Gestalten*) published between 1915 and 1929. As might be expected from these temporal limits, the predominant theme of these papers is perception. Most of the expansion of Gestalt theory to other fields is a matter of the past decade. The first section includes abstracts of general theoretical writings by Wertheimer and Koehler. The second section, which constitutes the bulk of the volume, summarizes papers on five groups of special problems. The first of these groups, "Perception," has three subgroups. The first, headed "Perception and Organization," includes Wertheimer's article on the Gestalt factors, Fuchs on transparency and on assimilation of colors, the Benary brightness con-

trast paper, the two Gottschaldt papers on the influence of experience on figure perception, and Wulf on *Prägnanz* and levelling. The second subgroup, "Perception and Movement," summarizes Ternus on phenomenal identity, Duncker on induced motion, and Lindemann and Hartmann on gamma movement. The third subgroup, "Perception and Related Phenomena," includes v. Frey on tactile Gestalten, Gelb on color constancy, and v. Hornbostel's poetic paper on the unity of the senses.

The second group labeled "Animal Experiments," although its chief subject is also perception, includes Koehler on structuring functions in chimpanzees and hens and Hertz on the perception of ravens, jays, and bees. Surely psychology must soon cease to define its fields in terms of the species of animal used for investigation and begin to define them in terms of psychological problems.

The third group on "Thought" contains abstracts of Wertheimer on numerical concepts of primitive peoples and on the syllogism and productive thinking. The fourth group, headed "Psychical Forces," abstracts Lewin on will, intention, and need, and Zeigarnik on the retention of completed and interrupted activities. Since the latter is already probably the best known of the Lewin *Untersuchungen*, it might have been more useful to substitute another one of the same period, e.g., Schwarz, Karsten, or Ovsiankina.

The fifth group, headed "Studies in Pathological Phenomena," although it also deals chiefly with perception, includes Gelb and Goldstein on figural blindness, Gelb on changes in the perception of colors in a case of brain injury, three papers by Fuchs, and Schulte's theory of paranoia.

The final section of the book summarizes the Koffka discussion with Benussi and Koehler's replies to G. E. Müller and Rignano.

There can be no doubt about the value and utility of the book. It should put an end to some of the current bizarre misconceptions of Gestalt theory. It provides a convenient set of examples of the way in which theory and experiment interact to constitute research. It will bring students closer than most of them have been able to get to the source of a sizable body of contemporary psychology. It deserves and will doubtless enjoy a wide use.

It is a pity that in so expensive a book and one in which the text has been so painstakingly prepared, the publishers should not have seen fit to provide better reproductions of the Benary figures.

D. K. Adams.
Duke University.

A Biological Approach to the Problems of Abnormal Behavior. By Milton Harrington. Lancaster, Pa.: Science Press Printing Co., 1938. 459 pp. $4.00.

Dr. Harrington is bitterly opposed to psychoanalysis, which he apparently believes is the only psychological theory that attempts to explain human behavior. In place of this he offers what he calls "a new approach to the problem of abnormal behavior."

Briefly, but essentially, behavior is explained as the result of the flow of nervous energy generated in the nerve cell by impinging stimuli. The gen-

eration of energy creates nervous tension which may be relieved by adequate motor or glandular reactions. If adequate behavior is impossible, there is nonadjustment which causes the usual symptomatic behavior or the tension may be relieved by wrong behavior causing maladjustment. Consciousness is admitted as an epiphenomenon of nervous activity. Motives and desires are ruled out as causes or determiners of action. In short, Dr. Harrington's "new" approach to behavior is the psychology of ten or twenty years ago, which in so many respects has proved inadequate.

A thorough pragmatist, the author accepts any theory or concept if it appears simple and seems to fit what he calls the facts. For example, the James-Lange theory is completely satisfactory. Again, learning is a change in the nervous tissue, making it easier for the nervous energy to flow in certain channels. Special mechanisms are "assumed" for pain, pleasure, anger, and mirth, the four great tension mechanisms, but no suggestion is given as to what these are, nor is any evidence given for them.

From the point of view of the psychologist, or even the psychiatrist, this book is not a very significant contribution. The author's psychological *naïveté* has caused him to present an outmoded psychology as an advanced system of behavior theory.

C. M. Louttit.
Indiana University.

Recent Experiments in Psychology. By Leland W. Crafts, Theodore C. Schneirla, Elsa E. Robinson, and Ralph W. Gilbert. New York: McGraw-Hill, 1938. xiv + 417 pp. $2.25.

This volume assembles, for the college student and for the general reader, experimental treatment of twenty-eight psychological topics. The investigations surveyed are chosen for student interest, for psychological significance, and for practicability of presentation. The range of topics is broad and well balanced. Unusual topics, such as lightning calculation, handwriting, and judgment of individuals from photographs, are included presumably because of their interest for everyday activities of students. Although no particular school of psychology is definitely championed, a behavioristic and physiological flavor adheres to a good portion of the work.

With two exceptions, each of the twenty-eight chapters begins with a formulation of a particular problem, continues with a digest of one or more experimental investigations of the problem, and concludes with a summary and discussion of the bearing of the experiments on the problem. The digest necessarily omits much detail and usually simplifies terminology, although in the chapter on organic nervous diseases many technical medical terms are employed. The form of presentation should render the experimental material comprehensible to the nontechnical reader; the skill in working out details of presentation is on the whole very good. The volume of course cannot meet the individual preferences of teachers for the inclusion or exclusion of certain materials. It should, however, prove very useful as supplementary reading in a general course and as an introduction to certain topics in more specialized courses in psychology.

T. L. McCulloch.
Yale University.

SCIENTISTS ARE HUMAN. (No. 6, *Library of Science and Culture.*) By Dr. David Lindsay Watson. With a Foreword by John Dewey. London: Watts & Co., 1938. xx + 249 pp. *7s. 6d.*

In sympathy with the operational trend of modern science this writer proposes that the end-product of science is affected crucially by the psychological constitution of the investigator and the social forces which produce him and render his work communicable. The explicit recognition of these forces is the more important because they influence the traditional principles of "objectivity" and "logical rigor" from which science develops its prestige.

The essentially creative act of the scientist is the sudden insight or intuition by which he perceives new relations and new classifications. This can be achieved only by a pioneering step away from the accepted and fixed knowledge of his contemporaries. His form of achievement is in its nature antisocial and incipiently psychopathological. Socially valuable results are attained only by the scientist who may maintain an unusual moral integrity.

Social forces, which tend to maintain a *status quo,* work against the pioneer and affirm the prestige of the scientifically accepted. The creative scientist, whose task is to find laws and orderly relations in nature, can do so only against the force of prestige which society has given to his occupation.

The author asks that scientists recognize their work as comparable to that of the creative artist, and in that light they should retreat from the limited language of instrument measures and mathematical formulations. The brain of the scientist is itself his most delicate instrument to detect similarities, the unlimited language of analogy and metaphor more exactly descriptive than the most complex mathematical statement.

The book is popularly written, interesting, and provocative. Many readers will wish that many of the footnotes, which the author admits having deleted in favor of readability, had been retained.

CHARLES E. STUART.
Duke University.

Books Received

THE OPEN MIND. By Frederick P. Gay. New York: Normandie House. 1939. xxiii + 324 pp. with Appendices. Illustrated. $5.00.

THE PLACE OF VALUE IN A WORLD OF FACTS. By Wolfgang Koehler. New York: Liveright Publishing Co. 1938. ix + 419 pp. with Index. $3.75.

THE CULTURE OF CITIES. By Lewis Mumford. New York: Harcourt Brace & Co. 1938. xii + 586 pp. with Index. Illustrated. $5.00.

EXPLORATIONS IN PERSONALITY: *A Clinical and Experimental Study of Fifty Men of College Age.* By Henry A. Murray. New York: Oxford University Press. 1938. xiv + 761 pp. with Index. $8.50.

EMOTIONS AND BODILY CHANGES: *A Survey of Literature on Psychomatic Interrelationships 1910-1933.* By H. Flanders Dunbar. New York: Columbia University Press. 1938. 3d edition. xl + 601 pp. with indices. $5.00.

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